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## BI-MONTHLY BULLETIN

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EUGENE R. KELLEY, M.D., Commissioner

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# MOUTH HYGIENE.

By Edwin N. Kent, D.M.D., President, Dental Hygiene Council of Massachusetts.

In recent years no part of the body has received more attention, in connection with the general problem of health maintenance, than has the vestibule of the digestive canal, — the mouth.

Articles on "Mouth Hygiene" have covered much space in newspapers and magazines, the gospel of mouth cleaning has been preached from many platforms, and free dental dispensaries have entered the philanthropic field in nearly all of the large cities and many of the smaller communities.

This sudden awakening of interest in the health of the oral cavity is not due to the discovery of any new forms of mouth disease nor to any appreciable increase in the prevalence of those previously recognized.

The same well-known destructive process, dental caries (tooth decay), is simply claiming new interest because of the fact that medical science, in its ever-persistent "search for the cause," has unexpectedly arrived at the mouth from several different starting points and has traced back to diseased teeth the primary lesions responsible for many serious systemic disturbances.

Dental caries is a disease characterized by a progressive destruction of the teeth and is the most prevalent of all human ills. It usually follows a definite course. A bit of food lodges and remains between two teeth, — in one of the grooves on the grinding surface of a tooth or at some other point where it is easily retained, — and the warm and wet conditions surrounding it cause it to decay and ferment, the fermentive action resulting in the production of an acid which eats through the hard glaze of the tooth enamel, forming the starting point of a cavity. Other bits of food débris are easily caught and held at this roughened spot and the decay continues rapidly, — later with the aid of bacteria, — until the cavity approaches the dental pulp (sometimes spoken of as the "nerve"), causing an inflammation which is marked by the familiar pain known as toothache. As the disease progresses further the pulp finally dies, and there usually follows at the end of the root of the tooth an abscess (often wrongly termed an ulceration).

The primary effect of this destructive disease has always been generally understood. There is an impairment of function of the organ of mastication directly due to loss of tooth substance and indirectly due to the sensitiveness of the exposed cavities.

There are secondary effects, however, of even greater importance to the health of the individual, which are not always so easily recognized. Many millions of the disease-producing organisms with which we are constantly in contact enter the body through the mouth and nose daily. They do not gain a foothold merely beause they are not present in sufficiently large numbers to overcome nature's protective elements. These organisms find in the open cavities of carious teeth ideal incubators or breeding grounds, and it has been determined that the germs of many of our most dreaded infectious diseases are finding here, at the "port of entrance," all of the favorable conditions necessary for that multiplication and reinforcement which make possible a successful invasion of the body.

Recent discoveries have also emphasized the importance of the fact that the poisonous products of an abscessed tooth find their way into the circulation and are carried to other parts of the system, where they are responsible for the establishment of serious secondary infections.

In all branches of modern medical practice the watchword is "prevention," and the great aim of present-day dental science is the prevention of dental caries. If we were eating proper foods and chewing them as nature intended, toothbrushes would be unnecessary, and the service of dentists would be limited to the repair of defects caused by accident, partly because tooth substance would receive the nourishment it needs, but mainly because the proper use of the teeth would keep them clean. In spite of our established habits of diet, however, at least 80 per cent. of dental decay might be prevented by resorting to what might be termed an excessive mastication of food, and by following simple prescribed rules of mouth hygiene. On this fact our present preventive efforts are based.

Mastication is an important act in connection with the process of digestion, as food should not enter the stomach until it has been reduced by thorough chewing to that pulpy, semifluid condition where it may be swallowed without effort. Incidentally, this excessive use of the teeth gives them exercise they need and helps to keep them clean, and it is therefore strongly advocated as a factor of prime importance in the maintenance of a healthy mouth.

Our artificial weapons of defence against the ravages of dental caries consist of two instruments, — a properly shaped toothbrush and a spool of floss silk. The bristles of a correctly formed toothbrush present a somewhat saw-shaped or serrated outline. To cleanse effectively the spaces between the teeth the brush should be used first as a series of toothpicks, placed against the gum and carried downward on the upper teeth and upward on the lower teeth on both inside and outside surfaces, to remove bits of food and other accumulations from the interdental spaces. This should be followed by a circular motion on all inside and outside surfaces and on the grinding surfaces of the back teeth.

As all of the interdental surfaces of the teeth cannot be reached with the toothbrush we make use here of our second instrument, — floss silk. This important adjunct to the toothbrush is nearly, if not quite, as important a weapon against tooth decay. It should be gently passed between the teeth all around the mouth, well up or down to the gum margin, drawn tightly against each tooth surface in turn, and carried out through the space at the cutting edges of the teeth with a lengthwise sliding motion. Floss silk may be purchased in convenient packages, or, in the absence of the prepared silk, any strong white silk or cotton thread will prove a fairly good substitute.

Since the main cause of tooth decay is the food left on and between them at meal time, it is only a natural conclusion that the most effective move we can make against the disease is to remove these bits of food after each meal. An additional cleansing of the teeth is advised at night before retiring, as the mouth will be at rest for several hours and conditions will be favorable to the decomposition of food débris or other accumulations on or between the teeth.

The familiar maxim, "A clean tooth never decays," has its exceptions, but in general it expresses a near truth on which we base our present fight against those destructive diseases of the mouth which modern medical science has charged with the responsibility for some of the most serious systemic affections which interfere with man's happiness and comfort. It may, at least, be stated with reasonable assurance that every individual who maintains a clean mouth and has regular examinations and such treatment as is needed by a dentist as often as his case demands takes a long step in the direction of perfect health.

## SCHOOL NURSING IN BERKSHIRE COUNTY.[1]

IN December, 1917, funds were provided to finance a county school nurse for Berkshire County, whose duty should be school nursing in those towns where school nurses are unknown. No work was undertaken in any town without the sanction of the school superintendent and school committee. School physicians were asked to assist. School authorities and teachers took the keenest interest in the movement, and in no instance hesitated to give full approval and co-operation. The work was arranged by school superintendent districts because these seemed to be the logical working units.

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[1] From a paper written by Dr. Howard A. Streeter, District Health Officer.

To those individuals who made possible this work is due deep gratitude, not only from those people who benefited directly, but also from town and county authorities, who, if they will study statistics here given, cannot fail to see the need of greater community interest in the physical requirements of growing children if health standards are to be improved.

To the nurse who entered whole-heartedly into the plan is due no small measure of the success attained. The severity of the winter delayed execution of the plan until March, when the nurse began her work and continued until the close of school, about July first. Early in July the nurse so changed her personal plans that she was obliged to resign.

Surveys were made in 11 towns, ranging in population from 4,000 to less than 100; valley towns and mountain towns; towns having a large amount of public funds and towns with extremely limited public treasury; schools with separated grades and schools with all grades in one room; towns having resident physicians and towns at least 10 miles from a doctor; schools having adequate medical inspection and schools in which a school physician never stepped; schools located in villages and schools located in isolated spots; modern schools and schools long since antiquated; schools with modern sanitary arrangements and schools with primitive accommodations. This wide range of conditions gives ample opportunity for comparison and study, but a careful perusal of the table appended reveals striking similarity in conditions found, — conditions fairly indicative of existing circumstances in rural Berkshire County. Beyond any doubt similar surveys in other parts of Massachusetts will yield similar results and, to carry the argument a bit farther, like conditions may be found in any section of the country.

*Work of the Nurse.* — All schools were visited in accordance with wishes of the several superintendents and, where possible, in company with the school physician. Let it be understood that the nurse in no instance attempted to make positive diagnoses of any obscure ailment. Certain physical defects are obvious to any one and these were noted. All obscure conditions were referred to a physician; copies of physical records were made; visits to parents of children having defects were made whenever possible and proper treatment advised; talks were given to groups of parents; health leagues were organized in those schools where the superintendent gave permission; health talks on personal hygiene were given to pupils; toothbrush drills held; in brief, as much instruction, both oral and objective, as possible was given without taking too much time from regular school tasks. The benefit derived from this instruction is amply attested by the few quotations from letters which will be found at the end of the summary.

*Medical School Inspection.* — The Massachusetts State regulation requires that the school committee of every city and town shall appoint school physicians and shall assign one to each school building. In large communities this may and does provide adequate medical attention for school children; but in districts isolated, as are some Berkshire towns, — miles removed from a physician, — this regulation does not afford sufficient medical care. The finances of many of these towns will not permit the expenditure of a sum of money adequate to pay the traveling expenses of a physician, to say nothing of a slight remuneration for his services. It appears that some change in the medical school inspection law should be made if pupils in small towns are to receive the benefit of the regulation.

*School Nurse.* — No town surveyed has a school nurse. If school inspection is to be successful follow-up work is absolutely essential, and this follow-up work is or should be the duty of a nurse. A tactful nurse can often influence a most obstinate parent to give his child the benefit of correctional treatment for a defect or ailment which, untreated, will cause great discomfort, or even disability, in later life. Two nurses employed full time could attend to the school nursing requirements of the rural sections of Berkshire County, do necessary follow-up work, arrange clinics and provide special examinations and treatments.

The nurse visited the homes of those children who seemed to need special treatment, and in many instances was able to convince the parents that medical advice and treatment should be given.

*Dental.* — The large number of children, 5 in 7, requiring dental treatment reveals a sad state, and this is even more forcibly impressed upon the mind when the ills caused by neglected teeth are considered. These defects are due in many instances not to carelessness but to the inaccessibility of dentists. Many of these people live over 10 miles from a dentist, practically an impossible journey except in dire necessity. If only a dentist could be easily reached the large majority of these people would gladly pay the cost of dental work.

It appears that a traveling dental outfit or clinic in charge of a competent dentist would provide not only for children but also for adults requiring dental advice and treatment. The cost of outfit and the expense of administration would not be so great as might appear, and after the first year the enterprise would probably be self-supporting. Here is an excellent opportunity for some philanthropist to equip a clinic which would be of inestimable value to all who might be privileged to use it.

*Clinics.* — Children with enlarged tonsils and adenoids, with defective eyes and ears, and with physical deformities were referred to clinics at different hospitals.

This survey has demonstrated the need for the rural community of school nursing with adequate follow-up work, provision for dental treatment, and periodic clinics for treatments both medical and surgical.

The selective draft, with its consequent examinations of draftees, has brought to the attention of the nation the need of greater care of the body if the physical status of its inhabitants is to be improved or even maintained. Thousands of men were rejected for the army because of defects which could have been easily remedied by proper treatment in earlier life. It also proves very forcibly that unless active measures are soon taken to provide necessary treatment for the growing generations, the manhood and womanhood of the nation will tend appreciably to deteriorate.

A campaign to save 100,000 babies has been launched by a government bureau. This campaign, laudable as it is, will come to naught unless those lives are maintained at the highest possible standard of physical efficiency until maturity; and this can be achieved only by providing adequate treatment at the proper time. A campaign to improve the physical status of 100,000 children between five and fifteen years of age would give brilliant results and would certainly improve coming generations.

A general survey of class rooms, school buildings and surroundings disclosed need for improvement in several instances. In general, toilet arrangements were unsanitary. No ventilation, no screens, lack of covers for seats, vault shallow and often entirely absent, and too great nearness to the schoolhouse are the most noticeable defects.

The method of heating was not without defects and limitations, but where stoves were used, either wood or coal, this is not easily remedied.

A few shiny blackboards were found, and in one instance the composition and location of the board were such that writing on it was illegible except within a few feet.

Adjustable seats were used in limited numbers.

## REPORT OF THE NURSE.

*To the Committee.*

In this report, covering four months' work in the rural schools of Berkshire County, the figures show very plainly how much the work is needed and how cordially the parents have responded to the opportunity for treatment.

Isolated in the lonely hills and often 8 miles or more from a physician, the difficulty of getting these children under treatment is at once apparent, the more so as they require the services of a specialist.

In almost every instance the parents are thankful to learn of an opportunity to attend a clinic; in a few instances they are living far from any center, and have neglected the child's education and physical needs as well. These cases have been reported to the school authorities and the Society for the Prevention of Cruelty to Children. The principal needs seem to be as follows: —

1. *Annual Medical Inspection.* — Owing to the remoteness of the schools and the small salaries paid the physicians, the medical inspection is not as complete as it should be.

2. *Standard Physical Record Card for the County.* — In the fall it is planned to use the card approved by the National Superintendent Association.

3. *Dental Care.* — Of 1,407 children, only 679 have ever been to a dentist and the majority of these for extractions only. Efforts are being made to secure a traveling dentist clinic to reach every school.

4. *Teaching of Personal Hygiene.* — To meet this need health leagues have been organized in all of the schools visited, with the exception of Williamstown, and the children have taken a great interest in winning a gold star for their league. Letters from the teachers state that they notice a marked improvement in the pupils' appearance. In the fall it is planned to enroll the leagues under the "Modern Crusaders," as the rules are identical, and it will give an added interest, as there are over 100,000 children enrolled in the United States.

The great value of these leagues is that they not only teach the children but carry the instruction to the homes, and also offer opportunities for teaching community hygiene by means of health playlets and entertainments given in the schools.

5. *Education of Community in Hygiene.* — Talks with lantern slides on health topics and sanitary schoolhouses have been given. Wherever talks have been given to the people, they have shown the greatest interest. Much of the neglect of the sanitary conditions of the schools is due to lack of standards. The same conditions prevail everywhere, and it remains for the school to teach sanitation and set an example to the community. Recommendations will be made to the towns to make any necessary improvements.

The superintendents of schools, the doctors and teachers have given very cordial co-operation and are much interested in the work.

Mr. Burr F. Jones, agent of the rural schools of the State Department of Education, accompanied the nurse in some of her visits and promised the support of his department.

This work is unique in that it has not been carried on in any other county in the State, or, so far as information is at hand, in any other State in the country.

MARION A. HINES,
*Nurse.*

The following extracts from letters written by teachers show plainly the interest which pupils have taken in personal hygiene. This has been fostered by rules of the "Health League," a copy of which is attached.

ASHLEY FALLS, MASS.

The Health League at the Ashley Falls primary school has a score of three-fifths, and awaits a star.

ASHLEY FALLS, MASS.

The per cent. of pupils in the grammar school who have observed the Health League Rules since your visit is 65.

HINSDALE, MASS.

On the whole, I think the Health League was quite a success and very interesting to the children in this school. Each child has made a great effort to obey all the rules, and in every case but two they have been successful. Some of the pupils could use nothing but a common towel because the parents were unwilling. I certainly believe that you and the Health League have done and are doing much good for the schools.

MILL RIVER, MASS.

We took a report of the Health Rules every day, and they have been perfect.

MILL RIVER, MASS.

I am writing as secretary of the Health League you formed to tell that the reports have been perfect since the first week. We had only two crosses then.

MOUNT WASHINGTON, MASS.

We asked the more important questions concerning the teeth, care of hands, sleeping with windows open, etc., mornings, and gave credits to those who had kept them. Averaging up the marks after this morning's report, we have found that the average is over 86 per cent. There has been a marked improvement in their appearance.

NEW MARLBOROUGH, MASS.

I am glad to say I have seen a great improvement in nearly every child's appearance. I know they are interested in it, as each one is anxious to get as many credits as possible.

SHEFFIELD, MASS.

We have been trying to follow the Health Rules and have succeeded quite well.

SOUTHFIELD, MASS.

It has been rather difficult to get a certain and true report as to some points, but knowing the families quite well, and judging from my own observation as to cleanliness of clothes, hands, face, nails, etc., I would say that two-thirds of my number have been trying quite faithfully to give special thought to the rules in general. They have thought more about their teeth especially, and, trusting to children's truthfulness, they have all been using a brush since your visit here, once a day at least. We have had special talks on the set of rules, aside from our regular hygiene lessons.

WASHINGTON, MASS.

According to the record of the children, they have kept over two-thirds of the Health League Rules. I have noticed a marked improvement in the finger nails and ears, and more than appreciate the Health League.

## HEALTH LEAGUE RULES.

1. Keep clean. Wash face, hands, neck and ears every day.
   Bathe once a week, better every day.
   Do not use common towel.
   Wash hands and clean finger nails before eating.
   Do not put in your mouth fingers, money, paper or pencils.
   Do not put in your mouth fruit, candy or chewing gum used by another.
   Do not bite your finger nails.
   Clean your teeth every day.
   Use own brush.
2. Sleep eight hours, better ten hours.
   Sleep with windows open.
3. Sit and stand erect.
   Practice deep breathing.
   Breathe through nose, keeping mouth closed.
   Stand on both feet.
4. Do not drink tea or coffee.
   Drink milk and cocoa.
5. Never cough or sneeze into another person's face. Use handkerchief.
   Do not spit on floors or sidewalks.
6. Never work in poor light or with light shining directly in eyes.
7. Keep out of doors.
   Let sunshine into your rooms.

## CLASS QUESTIONS.

1. How many drink tea?
2. How many drink coffee?
3. How many have no ventilation in bedroom — window open?
4. How many use toothbrush every day?
5. How many have personal toothbrush?

6. How many go to bed early — before eight?
7. How many have chronic illness in family? (Possibly tuberculosis.)
8. (*a*) How many have fruit at breakfast?
    (*b*) How many have proteid at breakfast? (Eggs.)
9. How many have been to a dentist?
10. How many have been vaccinated?

Reference to the table will show the use made of these "class questions." These questions were asked by the nurse, who recorded the answers given.

*Statistics.*

| | Lanesborough. | Cheshire. | New Ashford. | Williamstown. | Sheffield. | Mount Washington. | New Marlborough. | Hinsdale. | Peru. | Washington. | Windsor. | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Population of town, | 1,080 | 1,535 | 92 | 3,981 | 1,862 | 95 | 1,030 | 1,257 | 195 | 275 | 375 | 11,786 |
| Number of schools in town, | 5 | 3 | 1 | 7 | 8 | 2 | 9 | 6 | 2 | 2 | 6 | 51 |
| Schoolrooms, | 7 | 7 | 1 | 19 | 10 | 2 | 11 | 9 | 2 | 2 | 6 | 76 |
| Pupils, | 120 | 162 | 7 | 468 | 211 | 11 | 144 | 162 | 24 | 26 | 72 | 1,407 |
| Defective teeth, | 99 | 155 | 6 | 299 | 199 | 7 | 94 | 115 | 24 | 23 | 52 | 993 |
| Bad tonsils, | 21 | 25 | – | 48 | 51 | – | 20 | 49 | 7 | 10 | 13 | 244 |
| Adenoids, | 15 | 12 | 2 | 24 | 23 | – | 6 | 2 | 4 | 2 | 1 | 91 |
| Defective vision, | 15 | 18 | – | 18 | 14 | 3 | 11 | 10 | 2 | 2 | 6 | 99 |
| Defective hearing, | 11 | 4 | 1 | 10 | 10 | – | – | 2 | 1 | 2 | 1 | 42 |
| Ill-nourished, | – | 13 | – | 14 | 7 | – | 7 | 15 | 3 | 1 | 1 | 61 |
| Mental, | 10 | – | – | 5 | 3 | 2 | 1 | 1 | – | – | 2 | 24 |
| Enlarged cervical glands, | 4 | – | – | 3 | 11 | – | 2 | 10 | – | – | – | 30 |
| Incorrect posture, | – | 3 | – | 2 | 2 | – | – | – | – | – | 3 | 11 |
| Anæmia, | 1 | 3 | – | 6 | 3 | – | – | 8 | – | 1 | – | 22 |
| Orthopedic, | 3 | 2 | – | 4 | 3 | – | 1 | 2 | – | – | 2 | 17 |
| Defective speech, | 1 | – | 1 | 1 | 3 | 2 | 1 | 1 | 1 | – | 2 | 13 |
| Cardiac, | – | 1 | – | – | 3 | – | – | – | 1 | – | – | 5 |
| Pulmonary tuberculosis[1] (?), | 1 | – | – | – | 1 | – | – | – | – | 1 | – | 3 |
| Nervous, | – | – | – | – | 7 | – | 1 | 2 | – | 1 | 3 | 14 |
| Skin, | – | – | – | 6 | 1 | – | – | 7 | 1 | – | 1 | 16 |
| Cleanliness (untidy), | – | – | – | 6 | 10 | – | – | 13 | 3 | – | 9 | 41 |
| Pediculosis, | 1 | 2 | – | 1 | – | – | 2 | – | 3 | – | – | 9 |
| Communicable diseases,[2] | 59 | 107 | – | 103 | 2 | – | – | 63 | 2 | 1 | 4 | 341 |
| Vaccinated, | 29 | 140 | 1 | 460 | 189 | 4 | 108 | 98 | 5 | 15 | 30 | 1,079 |
| Health leagues, | 7 | 7 | 1 | – | 10 | 2 | 11 | 9 | 2 | 2 | 6 | 57 |
| Health talks to pupils, | 7 | 7 | 1 | 19 | 10 | 2 | 11 | 9 | 2 | 2 | 6 | 76 |
| Toothbrush drills, | 7 | 7 | 1 | 19 | 10 | 2 | 11 | 9 | 2 | 2 | 6 | 76 |
| Tea drinkers, | 58 | 61 | – | 162 | 95 | – | 42 | 53 | 15 | 11 | 17 | 514 |
| Coffee drinkers, | 79 | 102 | 5 | 245 | 123 | 4 | 63 | 44 | 20 | 16 | 31 | 732 |
| No ventilation in bedroom,[3] | 64 | 66 | 6 | 149 | 54 | 11 | 48 | 66 | 10 | 3 | 29 | 506 |
| Toothbrush used daily, | 62 | 28 | 4 | 243 | 89 | – | 53 | 39 | 4 | 3 | 5 | 530 |
| Personal toothbrush, | 105 | 150 | 7 | 425 | 174 | 8 | 113 | 124 | 15 | 21 | 45 | 1,186 |
| Early to bed, | 120 | 158 | 7 | 466 | 207 | 11 | 136 | 153 | 10 | 23 | 49 | 1,340 |
| Fruit at breakfast, | – | 54 | – | 129 | 33 | – | 15 | 12 | – | 1 | – | 244 |
| Protein at breakfast, | 110 | 162 | 7 | 468 | 24 | 11 | 144 | 162 | 24 | 26 | 69 | 1,207 |
| Have been to dentist, | 74 | 98 | 3 | 246 | 82 | 2 | 51 | 69 | 11 | 15 | 30 | 681 |

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[1] Had not had a careful physical examination.

[2] Number of cases in school during past year.

[3] No window open during sleeping hours.

# THE DEVELOPMENT OF DISPENSARY WORK IN A CITY OF 20,000.

By Mary Van Zile, R.N., Executive Secretary, Beverly Public Health Dispensary.

THERE are distinct advantages in developing dispensary work in a city of 20,000 over merely segment work in a great city. The public health nurse can get a reasonably comprehensive view of the problem as a whole, and can centralize all social activities toward its solution. In the early days of Beverly work, when the nurse expressed surprise at discovering so much latent efficiency and constructive enthusiasm, one of the workers replied, "We have all been anxious to do it, but we needed a leader."

When the Massachusetts Legislature required cities of 10,000 or over to establish dispensaries, a few especially progressive citizens of Beverly, wishing to see the tuberculosis work put on the most constructive lines, set about organizing an Anti-Tuberculosis Society with the purpose of co-operating with the national and State organizations, and of assisting the city board of health in the planning and administration of dispensary work. A nurse was engaged for two months, to make a preliminary survey of the tuberculosis situation and to prepare a tentative program for continued work. As an outcome of this study, a commission was appointed by the mayor, composed of the three members of the board of health and representatives of the Anti-Tuberculosis Society. A city appropriation was made, a skilled diagnostician was engaged for the clinic service, and a full-time nurse to serve as executive secretary. It was decided to use the name "Public Health Dispensary." A suite of three rooms was engaged in a central location, with the essential requirements of southern exposure, suitable plumbing and sufficient space. Necessary equipment was installed, and the first clinic was held July 1, 1915.

The organization completed, the most obvious need was the care of tuberculous patients. Having obtained the number, location and status of all known cases, we proceeded to use available State and municipal facilities for their care and supervision, including sanatoria, hospitals, relief organizations, and other agencies.

The dispensary record shows the number of patients under supervision from July 1, 1915, to Dec. 31, 1918, to be 708; the number of examinations, 1,701; and the number sent for sanatorium treatment, 56.

Meanwhile families of tuberculous patients having been examined at the dispensary, the need was evident of more community work for the prevention of disease. Colonel Bushnell has said, "Tuberculosis is curable, but the cure must be taken by the community as well as by the patient."

*Education.* — Education, as the fundamental and most necessary measure, was introduced in many ways. In 1916 a Health Week was held, when all organizations having a share in health effort were represented, — the Y. M. C. A., the Camp Fire Girls, Boy and Girl Scouts, the Public Library, the schools and the dispensary. An opportunity was given for them to show what they were doing, and to recommend more advanced methods for Beverly. The educational work has been carried on continuously by the different committees by means of exhibits, health literature, motion pictures, posters, compositions on health subjects, and by personal teaching by the nurses in the homes and schools and wherever this was permitted.

The city was districted and ward committees were appointed to spread the gospel of health, and to encourage the people to take advantage of lectures, moving pictures, and exhibits furnished at different times, and to urge attendance at the dispensary and baby clinic.

During the summer of 1918 a health center was established to serve as an information bureau in health matters. This work was interrupted by the influenza epidemic, but it is hoped that when it is reopened with the work carefully planned and well conducted, it will prove the most acceptable and far-reaching branch of the educational work.

*Dentistry.* — By examination of school children, it had been found that 90 per cent. had defective teeth. In 1916 a dental clinic was opened in one of the schools, to be directed by the board of health. Here treatments are given five days a week in the school year, averaging 16 a day, making 3,200 treatments during the school year.

*Posture.* — Defective posture among children led to the organization of a posture class financed by the Anti-Tuberculosis Society. This work and the photographs taken served as a convincing argument toward obtaining physical training and recreational supervision when this was urged by the Children's Bureau in 1918.

*Baby Welfare.* — Examinations at the dispensary showed glaring deficiencies in the system of care of infants, and the great need of prenatal instruction. The facts gathered paved the way for co-operation with the Council of National Defence, when general weighing and measuring was urged in 1918. By the activity of the Child Welfare Committee of the Anti-Tuberculosis Society, funds were raised for the child welfare nurse to direct and continue this important preventive work.

From beginnings concerned chiefly with the supervision of tuberculous patients, the tentacles of the program have been thrown out to carry education and prevention throughout the community.

## INFLUENZA EPIDEMIC IN MASSACHUSETTS.

THE following articles deal with certain phases of the recent influenza epidemic in Boston. No effort is made to present an exhaustive statement on the disease, as in the present state of our knowledge no such statement is possible. The reports on the use of influenza vaccine were generally unsatisfactory; the Department does not feel that a case has been made in favor of its use.

The section on epidemiology was written by Dr. Bernard W. Carey; that on medical personnel, by Dr. J. J. Carroll; that on the nursing personnel, by Miss Bernice W. Billings; that on the nursing organization in a small city, by Miss Blanche Wildes, and the review of the American Public Health Association discussions, by Drs. Finnegan and Brown.

### EPIDEMIOLOGY OF INFLUENZA IN MASSACHUSETTS.

The pandemic of influenza appeared in Massachusetts during the latter part of August, the first known cases being diagnosed at the Naval Hospital in Chelsea, as noted in the United States Public Health Service Report.

As influenza was not made reportable by the State Department of Health until October 4, its onset must be estimated by the death returns or from the reports furnished voluntarily by the physicians. From this data the onset and progress of the disease in this State was in part as follows: —

| | Onset. | |
|---|---|---|
| | By Deaths. | By Reports. |
| Chelsea (Naval Hospital), | – | Aug. 10 |
| Chelsea (civilian), | Aug. 28 | Sept. 16 |
| Boston, | Sept. 7 | Sept. 13 |
| New Bedford, | Sept. 8 | Sept. 19 |
| Arlington, | Sept. 10 | Sept. 21 |
| Medford, | Sept. 10 | Sept. 13 |
| Winthrop, | Sept. 11 | Sept. 13 |
| Haverhill, | Sept. 12 | Sept. 8 |
| Lowell, | Sept. 14 | Sept. 20 |
| Pittsfield, | Sept. 13 | Sept. 19 |
| Springfield, | Sept. 23 | Sept. 23 |
| Greenfield, | Sept. 22 | Sept. 26 |
| North Adams, | Sept. 23 | Sept. 30 |

Thus it appears that the first cases in the State were discovered in the eastern section, and following the usual lines of travel reached the western cities and towns in approximately two weeks.

An interesting feature in the onset of influenza in this State was the sudden increase in number of reported cases of lobar pneumonia from Camp Devens. During the month of August, up to the 26th, there were reported but 12 cases, while from the 26th to September 1, 98 cases were reported, making a total for the month of 110 cases. This sudden increase of lobar pneumonia may possibly have been due to an unrecognized infection of influenzal origin.

*Etiology.* — The etiology of influenza is as yet undetermined. While a majority of observers have agreed that the pneumococci, the streptococci, both hemolytic and viridans strains, micrococcus catarrhalis and influenza bacillus are present in the complications, none are agreed on the initial invading organism. Some feel that a diplostreptococcus is the offending agent, others lean toward the theory of a filterable virus; and so it goes on, with no definite proof of the actual agent yet available.

It is of interest to note that all experimental efforts to infect volunteers have failed thus far.

The incidence of the infection varied widely and for no apparent reason. For instance, Marlborough, surrounded by cities and towns almost overwhelmed by the outbreak, had few cases and needed no help. The case rate must remain unknown. The disease was not reportable at the time of the beginning of the outbreak, and the volume of cases made estimates particularly unreliable. Through information from all available sources the number in Boston alone is put at 200,000, and for the whole State at 500,000.

At Camp Devens from October 2 to October 29 there were 231 cases of influenza-pneumonia, and of this number 127 died, a fatality of 54.9 per cent. Of the 2,817 cases at this camp, reported from September 4 to October 29, 787 died, or 27.9 per cent. The Naval Hospital in Chelsea had about the same percentages, save in 150 cases treated with the serum from convalescent influenza-pneumonia cases, where the fatality was only 4 per cent.

The mortality rate for the State varied widely. Gloucester, with a rate of 9 per 100,000 population, was apparently the most severely afflicted city in the State. The general rate for the State was given by the United States Public Health Service as 5.4.

One striking feature was the marked decrease in the fatality rate as the pandemic progressed. Early in the outbreak the reported mortality of influenza-pneumonia from hospitals was nearly 60 per cent.

This was probably due to the moribund cases received in the beginning. Later, when there were earlier admissions, together with a decrease of the virulence, the fatality decreased to about 30 per cent., while during the present recrudescence a much lower rate is evidenced.

Just what the mortality rate from uncomplicated influenza might be is unknown. Most medical men have agreed and necropsies have shown that in the majority of cases death has resulted from a complicating pneumonic process.

Age incidence in the cases and deaths has been between twenty and thirty-five years in a very large percentage, and the sex groups have been nearly equal, with a slight increase in the male. In the pregnant woman the fatality has been high, probably 40 per cent.

*Transmission.* — The exact mode of transmission is unknown, but as a coryza is generally present in the initial attack, it is a fair presumption that personal contact, droplet infection and direct conveyance through infected articles and soiled hands are the more common avenues of infection.

An interesting feature in the transmission of influenza is told in the following letter received from Dr. Tuttle, who, warned by the experience of this and other States, made an unsuccessful effort to prevent the introduction of influenza into Alaska, which was then free from the infection: —

> I have your letter of the 17th. With regard to the outbreak of influenza at Nome, the history of the incident, as given to me by the superintendent of the steamship company, is as follows: —
>
> Realizing that the boat leaving Seattle would be the last boat to reach Nome this winter, and realizing that Nome was at that time free from influenza, and that the disease prevailed in the State of Washington, the superintendent undertook every precaution to prevent introducing the disease into Nome. Accordingly, he had every passenger, seaman and employee on the boat examined by his boat doctor. Realizing that this doctor might have overlooked some infected person, he had two other doctors examine all passengers, seamen and employees intending to sail on the boat to Nome. All examinations were made independently. Every person who showed any sign of sickness whatsoever was refused passage. This boat made the trip from Seattle to Nome without a single case of sickness. On reaching Nome all persons were quarantined in the hospital for five days, to see if any of them would show evidence of sickness. All mail and freight, except vegetables, were fumigated for ten hours with sulphur. Regardless of these precautions a severe epidemic of influenza was introduced at Nome by passengers on this boat.
>
> Yours very truly,
>
> T. D. TUTTLE,
>
> *Commissioner of Public Health for State of Washington, Seattle, Wash.*

## MEDICAL PERSONNEL DURING THE EPIDEMIC.

The influenza epidemic had been under way but a very few days when it was realized that the medical personnel of the State would, because of the depletion of its ranks by many physicians having entered the service, as well as the tremendous amount of work thrown upon the shoulders of those remaining, be unable to cope with the problem of effectively administering to those afflicted.

Hence the State Department of Health advertised for physicians to aid in the fight, and also called upon the United States Public Health Service for additional assistance. Surgeon General Blue took immediate action, wiring members of the recently organized Volunteer Medical Corps. This group is composed of thousands of physicians throughout the country, who, for some reason unable to enter military service, had volunteered to serve should any emergency arise anywhere in the country calling for such service. The result was that within a few days 114 physicians, from more or less distant States, reported for immediate service in the field. During the three weeks following the organization of the Emergency Health Committee the calls from the various boards of health for physicians were so numerous and urgent that the officer in charge of this work was on duty from 8 A.M. until 11 P.M.

On September 27 Dr. W. M. Bryan of the United States Public Health Service relieved Dr. Bernard W. Carey, who for several days previous had had in charge the assigning of physicians to stricken communities. A day or two later Dr. Draper of the same service took charge of the Federal interests and pay roll, whereas Dr. Bryan was under the direction of the Massachusetts State Department of Health, as was Dr. Carroll, who reported for duty October 1 and later relieved Dr. Bryan.

The number of registrations and assignments were as follows: —

| | |
|---|---|
| Physicians from within the State, | 52 |
| Physicians from other States (volunteer medical corps), | 114 |
| Fourth-year medical students from within the State (those acting as assistants to the physicians), | 72 |
| Total physicians and assistants, | 238 |
| Total number of assignments, | 276 |

## THE NURSING PERSONNEL DURING THE EPIDEMIC.

On Sept. 25, 1918, the nursing registries of eastern Massachusetts were without the names of any available nurses. At this time constant calls were being received at the office of the State Health Department from hospitals and visiting nurse associations asking for help in obtaining trained nurses. The situation was so acute that 8 of the public health nurses in the employment of the State were sent to communities most in need of help, as well as to report the nursing needs of the communities.

At a meeting of the Emergency Health Committee held at this time a committee on nursing was appointed, as follows: Miss Mary Beard, representing the Council of National Defense; Miss Elizabeth Ross, representing the American Red Cross; and Miss Bernice W. Billings, representing the State Department of Health.

Appeals for nurses and attendants were issued through the press and the Red Cross. Telephone messages were sent to the western part of the State, and to Dr. Charles V. Chapin, Commissioner of Health of the city of Providence, R. I., requesting immediate aid. There was a ready response. Nine public health nurses from Providence and 5 nurses from western Massachusetts arrived at the end of the following day, at a time when the situation was well-nigh desperate, and the list of available nurses was exhausted. The nurses were sent in small groups to those communities most in need of aid. The Providence nurses were the first out-of-State nurses to come to our assistance, and never were nurses more eagerly welcomed.

By the 28th of September it became impossible for one person to interview nurses and aids and place them on the pay roll and assign them to the boards of health in the communities needing help. Therefore, upon request of Dr. Eugene R. Kelley, Commissioner of Health, the Red Cross loaned Miss Elizabeth Ross to assist in this work. Miss Ross was invaluable in this capacity, as she was thoroughly familiar with the nursing resources in Massachusetts. The entire office force of the subdivision of tuberculosis was turned over to this work, in addition to the excellent corps of workers supplied by the Emergency Health Committee.

*Out-of-State Nurses.* — Units of nurses were loaned from Halifax, N. S., Toronto and Hamilton, Ontario, Can., Maine and Pennsylvania, in addition to that of Rhode Island. The State of Pennsylvania loaned 15 of its public health nurses, who, while they were here, rendered valuable assistance. These nurses were soon recalled to combat the epidemic in Pennsylvania. We were also indebted to the Metropolitan Life Insurance Company for the services of Miss M. H. P. Bridges, supervising nurse. Other nurses who responded to our call for aid represented the States of Wisconsin, Maryland, New Hampshire, Vermont, Connecticut, New York, and some of the Canadian provinces, such as Quebec, New Brunswick, etc., making a total of 1,097 nurses in all who helped us in some capacity.

Calls for help from cities and towns were acted upon in the order in which they were received. In addition to these appeals for nurses to fill institutional and public health positions, there were repeated calls for private duty nurses. These were most pathetic. There were in many instances whole families ill, with no one at hand to give skilled care. At first we thought that sufficient help would be available to care for these private cases, and accordingly the names and addresses of patients were recorded. It soon became apparent, however, that we could not supply sufficient help for these private cases. They were therefore referred to the local boards of health and visiting nurse associations.

As the disease spread toward the western part of the State the question of providing nurses became even more difficult. This was due to the fact that the supply of nurses and aids had been exhausted, and also because the nurses who had worked in the eastern section of the State were thoroughly tired out from overwork and the harrowing scenes through which they had lived. Many of them had become ill, and were being cared for in local hospitals. The number of sick nurses increased so rapidly that it finally became necessary to place one worker in charge of them. The total number of sick nurses was 101. There were 5 deaths. Mr. and Mrs. J. J. Storrow of Lincoln and Mrs. P. J. Fenno of Rowley opened their homes for the use of convalescent nurses; also the Hoosic-Whisick Club, Canton, and the New England Sanatorium, Melrose. We were thus able to send many of these women back for further service.

The transportation of assistants to the various communities was in charge of a section of the Emergency Health Committee, and was admirably handled. There is no record of any one of the nurses or assistants being sent to the wrong destination. When we consider the number assigned and reassigned, it is proof of very careful work on the part of this committee.

The lay women who gave such able assistance deserve great tribute. Many of these women were teachers, accustomed to giving directions, and to doing little or no manual labor. They gave of their strength generously, and undoubtedly assisted in saving many lives.

The work of the nurse has never been so thoroughly appreciated as during this tragic time. Many of the nurses who gave of their skill and strength, and some of whom gave their lives, had been unable to go to France when war was declared. These women were not only willing but glad to throw themselves into this work in a most wonderful and inspiring manner. At the peak of the epidemic we could easily have used 3,000 trained nurses had we been able to procure them. This will give an idea of what the women in the field faced from day to day. One of many instances of complete self-forgetfulness was shown when we sent a unit of nurses to Pennsylvania. A nurse who had done unusually hard work for two weeks, and who in consequence, being thoroughly tired out, was resting, was asked if she would go with the Pennsylvania unit. She apologized, saying she was nearly ill and did not dare risk it. This was considered final, but in about an hour, when the necessary number of nurses had been assigned to Pennsylvania, we received word from this nurse saying that she "felt selfish, and knew she could stand it, and would we please send her."

A relatively small percentage of this nursing material was unfit. We feel that 5 per cent. would cover those who were discarded for inefficiency. Considering the fact that these helpers came in response to advertising, and that there was no time to make inquiries concerning applicants, this percentage is remarkably small.

The public should realize that during this epidemic it would have been less difficult to give care to the sick had all our communities been provided with good nursing organizations and an adequate number of public health nurses for use in ordinary times.

## HOW OUR NURSING WAS ORGANIZED IN GLOUCESTER.

On Sept. 26, 1918, I was sent to Gloucester to organize emergency nursing to meet the needs created by the rapidly increasing epidemic. There I met at once Lieut. John Radcliffe of the board of health, and various workers. The District Nursing Association was receiving more calls for doctors and nurses than could possibly be answered, and the president of the association, Mrs. Griffin, was struggling with 2 nurses, one of her regular force of three, and the board of health nurse. A clerk was secured to record calls and to make visiting lists for doctors and nurses.

On September 27, 6 nurses were sent from the State Emergency Health Committee. Of these, 3 were assigned to the district, 1 for nights and 2 for days. The remaining 3 were sent to the emergency hospital in the Spanish War Veterans' Hall, where the crowded conditions beggar description. In this hall the men's beds ran along one side of the hall and the women's on the opposite side, while there was a double line of beds between these. The delirium was extreme, and was, no doubt, aggravated by the close quarters, confusion among attendants, poor ventilation, the frequent removal of the dead, etc. The largest number of patients there at any one time from September 10 to 29 was 53, while the total cared for was 84.

Miss Julia M. Leach, superintendent of Addison Gilbert Hospital, was in charge of this emergency hospital and worked untiringly against great odds, with at one time but 1 graduate nurse. Both men and women volunteers assisted Miss Leach, doing splendid work in the wards, in the very small diet kitchen, and at the desk, where calls were coming every few minutes of the day and night.

It was soon decided to have all the calls sent to one office to avoid duplication, and on September 28, in the midst of the hurry and confusion in the close quarters of the Visiting Nursing Association, we moved the office to the board of health quarters, which were commodious and allowed the work to be carried on in a businesslike way. This office was open all night, — a nurse and doctor in attendance, — with a man volunteer at the desk, and a volunteer motor service already well organized by Mrs. Frank Griffin.

An idea of the calls made from September 28 to October 11 by the 5 district nurses may be gained from the following: the maximum was 68 calls, on October 3, while the total for this period was 567 calls. The greatest number of doctors' calls was 102, on September 28, with a total of 560 calls for the twelve days' period.

On September 28 a Canadian unit of 14 nurses was sent by the State Committee. Calls on the visiting nurses had become so urgent that we were obliged to ask 3 of these women to serve in shifts for that night. This was done cheerfully, although the nurses had been traveling for twenty-four hours and were much fatigued.

After a few days of rapid and intensely hard work, the State Guard Field Hospital, Major Sturgis in command, was opened on the night of September 28, with 7 patients from the Emergency Hospital. The balance of the Canadian nurses went on duty the following morning, when the Emergency Hospital transferred all of its patients. The district doctors and nurses sent many cases to the field hospital, so that the total force of 28 nurses finally sent by the State Committee was taxed to the utmost when the limit of 144 patients was reached.

The State Guard men — Gloucester citizens — assisted the nurses ably and unselfishly. The women of the town were asked to serve as nurses' aids and volunteered in large numbers. They were formed into six-hour shifts by Mrs. Raymond Calpin, a Red Cross lay worker, who kept track of hours and supplied vacancies, besides attending to innumerable details at headquarters. In fact, the self-sacrifice of the Gloucester people was notable, and largely contributed to the results attained, and also made possible the early closing of the hospital.

The care of influenza patients requires skill and devotion on the part of both physicians and nurses. The volunteers among the physicians were from veterans down to third and fourth year medical men. One physician contracted pneumonia. As to the nurses, the cost to themselves may be realized by the fact that of the original 28, 13 remained on duty, 8 having become ill and 7 having gone home.

## REVIEW OF INFLUENZA AS OUTLINED AT THE CONVENTION OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, CHICAGO.

The American Public Health Association at its recent convention in Chicago was principally concerned with discussions on the pandemic of influenza. It was estimated that there were approximately 10,000,000 cases and 400,000 deaths in the United States from this disease in the months of September, October and November, 1918.

The etiology, modes of transmission, the use of biological agents for prophylactic and therapeutic purposes, and measures for control were the predominating topics of discussion, and efforts were made to arrive at a uniform standard of control to guide the action of local health authorities in combating future outbreaks of this disease.

The consensus of opinion of the meeting was that the micro-organism, or virus causative, of the disease was undetermined, but that the superimposed infections were caused by several known organisms, and that these were responsible for the fatal terminations.

Parks of New York defined the disease as an infection with an unknown or unrecognized organism, which prepares the way for secondary infections with known types of organisms. He reported that in 3,000 cultures the bacillus of Pfeiffer, or the so-called influenza bacillus, was present in 8.7 per cent.; that the Type IV pneumococcus was the predominating organism found; and that streptococci were also found.

Rosenau of Boston reported that early in the epidemic cultures taken at autopsies revealed the presence of influenza bacilli in 83 per cent. of the cases and in the remaining 17 per cent. Types II and IV pneumococci; in a few cases there were hemolytic streptococci.

Rosenow of the Mayo Foundation stated that whereas our knowledge of the primary cause of influenza was uncertain, there was, however, no doubt as to the identity of the organisms actually concerned in the fatal pneumonias. However, in different localities during the present epidemic there was a wide range in the predominating organisms, and even in the same locality at different times in the local outbreaks marked changes were noticed in the bacterial flora.

Early in the epidemic, as it occurred around Rochester, cultures from the nose, throat, sputum and lungs showed quite constantly the presence of a gram positive lanceolate diplococcus occurring singly, but more often in long chains. On artificial cultivation it presented morphologic and cultural characteristics both of the pneumococcus and of the streptococcus viridans.

This organism was found to be more virulent than the green-producing streptococcus from the throat of normal persons, but less virulent than the pneumococci from lobar pneumonia. Hemolytic streptococci were found next in frequency, especially in fatal cases. Staphylococcus aureus and Pfeiffer bacillus played a less important but yet a definite rôle in the production of the complicating pneumonias. The fixed types of the pneumococci were at times isolated, especially in the early part of the epidemic.

## MODES OF TRANSMISSION.

As the etiology of influenza is not yet determined, the mode or modes of transmission cannot be positively stated; but since the disease attacks principally the respiratory tract, it seems very probable that the infective micro-organism or virus is contained in the secretions and discharges of this tract, and that the infection is spread mainly through these discharges. If this be so then droplet infection must be considered as one of the principal modes of transmission of the disease. Likewise contact, both direct and indirect, will prove to be another important means of spread.

## THE USE OF BIOLOGICAL AGENTS.

Much interest was exhibited in the discussions concerning the efficacy of vaccines for prophylactic and therapeutic use. From the papers read and from the open discussion the following general conclusions were drawn: —

1. Vaccines made from bacillus of Pfeiffer were not successful.

2. Vaccines from stock cultures of one or more organisms were of no value.

3. A vaccine made from organisms freshly isolated from the sputum

and lungs, and incorporated in about the proportion as found, might be of value in preventing the complicating influenzal pneumonias.

From the small amount of data available and the lack of suitable control groups it was not possible to draw a definite conclusion as to the value of even such a vaccine.

4. No vaccine possessed therapeutic properties or value.

Rosenow of the Mayo Foundation, concluding that the cause of the primary disease was not determined, and knowing the identity of the organisms concerned in the fatal pneumonias, prepared a mixed vaccine from the organisms in about the same proportion as found in sputum and lungs.

The fixed types of the pneumococcus were included in this vaccine for the reason that lobar pneumonia is generally prevalent as an aftermath of epidemics of influenza.

The organisms should be freshly isolated and grown separately and the vaccine made to conform as nearly as possible to the respective flora of the disease as it occurs in the communities in which the vaccine is to be used. The vaccine, as prepared by him, is as follows: —

| | Per Cent. |
|---|---|
| Pneumococci, Types I, II, III, | 30 |
| Pneumococci, Type IV (and allied green-producing diplostreptococcus), | 30 |
| Hemolytic streptococcus, | 20 |
| Staphylococcus aureus, | 10 |
| Pfeiffer bacillus, | 10 |

By the use of a vaccine thus prepared he concluded that a certain degree of protection was afforded against respiratory complications of influenza.

McCoy of the Hygienic Laboratory concurred with Rosenow on the use of a mixed vaccine as described above, but he did not believe that straight influenza vaccine possessed either prophylactic or therapeutic purposes.

## THE USE OF CONVALESCENT SERUM.

At a joint meeting held with the Chicago Medical Society an interesting paper on the treatment of influenzal pneumonia was read by Dr. Hartman of the Navy Medical Department.

O'Malley and Hartman, working jointly in the Naval Hospital in Washington, hearing of the favorable results on the use of convalescent serum, as carried out by Maguire and Redden at the Chelsea Naval Hospital, started upon this field of investigation.

Unlike the procedure as carried out in Chelsea, where the serum is obtained by clotting and centrifuging, they used a citrated plasma.

The patient on being discharged to the convalescent ward had a Wassermann taken and his venereal history carefully investigated. If the Wassermann was negative and his history satisfactory he was bled after being about the ward four to six days. Blood was drawn twice, at intervals of several days, in amounts of 300 to 500 cubic centimeters.

After the plasma is prepared it is administered intravenously by the gravity method; a small needle and low pressure are used, so that fifteen to twenty minutes are consumed in giving the average dose of 125 cubic centimeters. This plasma may be given at twelve to twenty-four hour intervals, until the temperature becomes normal.

Convalescent patients furnishing blood should come from the same locality where the patient lives. Tests for compatibility between the plasma and the patient's blood are not essential. Reactions following the administrations occur within two hours in about 75 per cent. of the cases and consist of chilly sensations or a marked chill lasting several minutes; rise of temperature, 1 to 2 degrees, and marked sweating.

In the first case treated it was found that 25 per cent. of plasma was very potent, 65 per cent. moderately potent and 10 per cent. inactive.

Complications of any kind interfere with recovery, and pleurisy, especially the pleurisy with effusion, seemed to neutralize the beneficial properties of the plasma.

In a series of 46 cases of influenzal pneumonia treated with the plasma 3 deaths occurred, making a mortality of 6.5 per cent. Of the 111 patients not treated with plasma, 28 died, giving a mortality of 25.2 per cent.

His conclusions on the use of the plasma were: —

1. Toxæmia of influenza seems to be neutralized by the plasma from convalescent patients.
2. A large percentage of all plasma is inactive and better results are obtained by pooling the different lots.
3. Sharp reactions are followed by the most prompt improvement, but are not essential to success.
4. Pneumonia must be diagnosed and treated early if a large percentage of recoveries is to be obtained.

## Prevention and Control.

The methods of prevention and control of influenza, and the efficiency of the measures generally adopted during the epidemic; the general closing orders; the use of masks; the care of hands; the care of food and utensils; the use of prophylactic vaccines; and the isolation and quarantine of patients were widely discussed.

Varied opinions were offered by health officers from different sections of the country showing that while their problems were more or less the same the disease did not affect any two sections in exactly the same manner.

From the lack of knowledge of the etiology, the lack of knowledge of prophylactic vaccines, the lack of knowledge of the exact modes of transmission, no definite measures of control could be formulated that would be applicable to all communities, but it did seem to be the general opinion of the meeting that the following measures were best adapted to aid in the control of influenza: —

1. Compulsory reporting of cases of patients ill with influenza.
2. Isolation of patient and quarantine if necessary.
3. Disinfection of discharges from the nose and throat.
4. Wearing of masks by attendants in sick room.
5. Care of the hands of patients.
6. Care of food utensils.
7. General closing orders, especially those places where crowding was most liable to occur.
8. Education and publicity.

Of the above conclusions the general closing order provoked the most discussion, and diversity of opinion was very evident; nevertheless, the closing of schools and theatres is one of our best means of preventing close contact, and, regardless of the mode of transmission, influenza is a "crowd" disease.

The closing of saloons, dance halls and other public gatherings is also a means of preventing contact. Prohibition of public funerals should be included, as being unnecessary assemblies in limited quarters, with the possibility of contact with carriers.

Education and publicity should consist of pamphlets and newspaper articles on the care and prevention of the disease.

Danger of unguarded coughing and sneezing and the use of the common drinking cup should be emphasized.

Enforcement of the anti-expectoration laws and avoidance of crowds and unnecessary exposures to the disease should also be urged.

In conclusion let us state that it was quite evident from the reports read at the convention that Massachusetts, attacked as she was among the earliest, and having had no warning of the high mortality of this disease, suffered no more serious plight than did many of her sister States even after they had been given the benefit of her experience.

# USE OF INFLUENZA VACCINE AS A PROPHYLACTIC — AN EXPERIMENTAL STUDY CONDUCTED BY THE MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

By Wm. A. Hinton, M.D., Boston; Edna Sypher Kane, M.D., Monson.

THE chief reason for writing this paper is to show the necessity of properly controlled experiments to determine the value of a prophylactic remedy during an epidemic. As will be shown later, only one institution from a group of twelve State institutions, representing a total population of about 15,000, of whom over 6,000 were vaccinated, afforded the necessary control for investigating the prophylactic value of the particular influenza vaccine furnished. The vaccine used by the State Department of Health in the recent epidemic was prepared in the pathologic laboratory of Tufts Medical College under the direction of Dr. Timothy Leary. The vaccine consisted of two strains of influenza bacilli, obtained during the present epidemic,[1] one strain being recovered at autopsy and the other from the nose of an infected patient. These organisms were grown on blood agar for from sixteen to twenty hours, suspended in salt solution and heated to 55° C. for twenty minutes. One cubic centimeter of the vaccine contained approximately 800 million organisms. Tricresol was added to keep the vaccine sterile or to prevent the growth of a few contaminating organisms, chiefly staphylococci, which in the hurry of preparation it was sometimes impossible to eliminate. The vaccine was given intramuscularly at twenty-four hour intervals into the deltoid and triceps muscles. The injections were 0.5 cubic centimeters on the first day, 1.00 cubic centimeters on the second day and 1.5 cubic centimeters on the third day. Children under twelve years of age were given one-half these quantities.

The administration of the vaccine in all of the institutions listed was under the direct supervision of one of us (Hinton), who organized the personnel required and gave such directions as were necessary to carry out the experiment.

During the first week of October a canvas, was made of the State institutions, considering chiefly those under the control of the Commission on Mental Diseases, to determine the incidence of influenza in them. It was found that of this group of institutions only the Monson

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[1] The first cases of so-called influenza occurred in Boston August 28. These cultures were obtained before the middle of September.

State Hospital and the Northampton State Hospital had no cases of influenza previous to October 6, the day on which the inoculations were begun.

At this point we wish to thank Dr. George M. Kline, State Commissioner on Mental Diseases, the superintendents of the State institutions involved, and the medical staff of these institutions, upon whose fine co-operation the success of this experiment depended.

*Description of the Monson Experiment.* — The Monson State Hospital, for epileptics, has inmates from four years of age to senility, in addition to a staff of three physicians and approximately one hundred attendants. The inmates are housed in fourteen buildings. The activities consist of agricultural pursuits, laundry work and other occupations such as are carried on in an institution of like character. It therefore represented a small colony of individuals ideally suited for the purposes of this experiment. Further, this institution had been under partial quarantine since the middle of September, which was continued throughout the epidemic. Approximately half of the patients in each building were vaccinated, and as far as possible this was done by vaccinating a patient in every other bed of a ward or room.

Careful records were kept on 233 female patients as to the local and constitutional reactions of the vaccine. The following table will show the constitutional effects of the vaccine by age groups: —

TABLE I. — *Reaction to Vaccinations.*

| AGES. | Number of Inmates. | No Reaction. | Headache and Vertigo. | Cough and Coryza. |
|---|---|---|---|---|
| 4–10 years, | 4 | 2 | 2 | – |
| 11–20 years, | 61 | 39 | 15 | 7 |
| 21–30 years, | 62 | 55 | 4 | 3 |
| 31–40 years, | 42 | 37 | 2 | 3 |
| 41–50 years, | 26 | 23 | 2 | 1 |
| 51–60 years, | 22 | 20 | 1 | 1 |
| 61–70 years, | 8 | 8 | – | – |
| | 225 | 184 | 26 | 15 |

In addition to these 41 patients who gave reactions as noted in Table I, 8 gave severe reactions with all of these symptoms.

In spite of the fact that the number of injections and the quantity of each injection was the same for each vaccinated individual in this institution, constitutional symptoms were relatively no more frequent in the young than in the older patients. Forty-one patients showed mild constitutional symptoms of influenza, consisting of rise in temperature or nausea or vomiting or coryza or headache. The duration of symptoms was for twenty-four hours or less. The constitutional reaction almost invariably occurred within an hour or so after the second injection. In one of the buildings, consisting of tuberculous patients, the constitutional effects of the vaccine, as far as could be noted, differed in no way from those without this pulmonary complication.

In tabulating the results after the epidemic, it was noted that some of the patients having the severest reactions from the vaccination developed influenza, although the interval was from four days to thirty-six days after receiving the vaccine. Therefore the reaction from vaccination did not indicate the susceptibility of the individual to infection.

When the first inoculations of vaccine were given, on October 6, there were no cases of influenza in the Monson State Hospital. A few hours after these were completed 1 inmate developed typical symptoms of influenza. There were no more cases until October 12, when 5 cases were discovered. The following diagrams indicate the incidence of the disease after inoculation: —

It will be noticed from these diagrams that the incidence was greatest at two periods, but that there was no time during which the disease entirely died out prior to November 30. The total population of the institution consisted of 979 inmates, of whom 461 were vaccinated and 518 were not vaccinated. Morbidity and mortality rates of each class of inmates are also shown in the diagram.

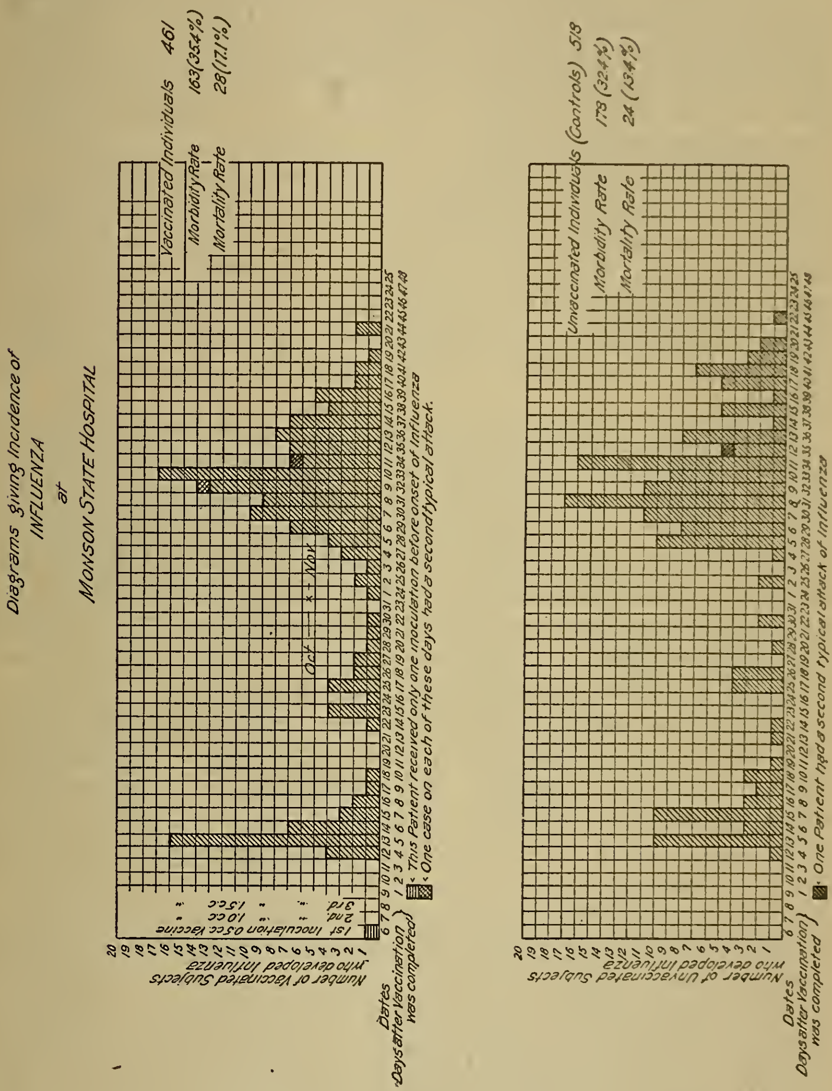
Clinically some of the fatal cases did not have pneumonia, but the work of Dr. Wolbach and Dr. Christian at the Brigham Hospital indicates that none of the fatal cases escape this complication, and we therefore assume that all such cases in this experiment were complicated by pneumonia. Although the patients consisted almost entirely of epileptics, influenza seemed to have no effect on the number of seizures of infected individuals.

Table III illustrates the effect of vaccine upon the course of the disease. We have taken the temperature as a criterion for the severity of the infection.

TABLE III. — *Comparison of Effect of Vaccine on Fever as a Symptom.*

| | Average Number of Days of Fever. | Average Temperature (Degrees). | Average Number of Days of High Temperature. |
|---|---|---|---|
| Vaccinated patients, | 5 | 102.0 | 1.7 |
| Unvaccinated patients, | 5½ | 102.8 | 2.0 |

From this table it is evident that vaccination had no demonstrable effect upon the course of the disease. Of course this tabulation considers only non-fatal cases.



In addition to the experimental study carried on in Monson State Hospital, the following description is given of the use of the same influenza vaccine for prophylaxis in other State institutions. For one reason or another, no conclusive proof as to value of the vaccine as a prophylactic could be obtained in any of them. The reason or reasons will be stated as each of the institutions is considered.

*Taunton State Hospital* for insane consists of a total population of 1,400, almost entirely adults, of whom about 800 were vaccinated. Eighty-one cases of influenza occurred after vaccination, of whom 17 developed a fatal pneumonia. No conclusions, however, can be drawn from this experiment because the epidemic was decidedly on the wane when vaccinations were begun.

*Gardner State Colony* consists of 940 inmates and attendants, of whom about 834 were vaccinated. Ninety-five of the unvaccinated patients were infected before vaccination was begun. In the entire institution there were 157 cases, giving a morbidity rate of 16 per cent. The mortality rate of this institution was unusually low, there being only 13 fatal cases, a mortality rate of 8.2 per cent. In this institution the vaccination was started after the incidence reached its highest.

*Danvers State Hospital* consists of a total population of 853, mostly adults. About one-third of the patients were vaccinated with an unheated influenza vaccine supplied to us through the kindness of Dr. Rosenau of the Chelsea Naval Hospital; another third was vaccinated with the vaccine used throughout the other groups, and one-third of the patients were left as controls. The epidemic had reached its height when the vaccinations were begun, and no conclusive evidence as to the difference and effect of these types of vaccines can be determined, nor as to the usefulness of vaccines generally for prophylaxis.

*Massachusetts School for the Feeble-minded*, with an entire population of 1,548, of whom 457 inmates were selected for experimental purposes. Two hundred and thirty-four of these patients were vaccinated, of whom 56 developed influenza, with two pneumonias, giving a morbidity rate of 23.9 per cent. Of the 223 unvaccinated inmates, 185 developed influenza, with 16 pneumonias and 12 deaths, giving a morbidity rate of 82.9 per cent. and a mortality rate of 6.4 per cent. It will be noted in this institution that there were no deaths among the vaccinated patients in spite of the high morbidity rate of this group. The impression given to the attending physicians in this institution was that the vaccine made the symptoms less severe in the infected but on the whole prolonged the course of the disease. In this institution one is dealing with patients from four years of age to senility, but chiefly patients in the second decade of life. The absence of mortality among the vaccinated in this institution would seem to be due to the fact that the subjects selected for vaccination were from groups who were working almost entirely with the preparation of food, therefore representing a well-fed and vigorous group. The unvaccinated controls represented inmates of a lower grade mentally and in many instances physically. It is evident, therefore, that this experiment failed to give evidence of value as to the prophylactic merit of the vaccine because of the manner of selecting the individuals for vaccination. In all there were about 800 cases of influenza in the entire institution.

*Wrentham State School* represents a total population of 1,326, chiefly in the second decade, but including attendants and physicians, 128 of whom were vaccinated. Of these 128 vaccinated inmates, 13 developed influenza, 1 being complicated by pneumonia; there was 1 death, representing a mortality rate of 0.8 per cent. and a morbidity rate of 10 per cent. Of the 1,198 unvaccinated patients, 758 developed influenza; morbidity rate, 63 per cent. Physicians in this institution believe that those who had received the vaccine were not as ill as those who had not. No definite facts were produced in support of this impression. This institution gave no information as to the prophylactic value of the vaccine, because the epidemic was well under way before the vaccinations were begun. Hence the susceptible individuals were in large part either affected or infected with the disease.

*Medfield State Hospital* consists of a total population of 1,940, of whom 902 were vaccinated. There were 421 cases of influenza, with 63 deaths, before the vaccination was begun. Since vaccination only 1 unvaccinated patient developed influenza and there were none among the vaccinated. Prior to vaccination there were 3 deaths of influenza uncomplicated, 46 complicated with bronchopneumonia and 14 with lobar pneumonia, making a mortality rate of 15 per cent. The morbidity rate of the entire group was 21 per cent. before vaccinations were begun. In this institution the epidemic had practically spent itself before vaccination was begun.

*Northampton State Hospital* consists of a total population of 1,007 patients, of whom 563 were vaccinated. One of these after vaccination showed all of the constitutional symptoms of the disease, with a temperature of 101.4, and was sick in bed for three days. This was probably a slight attack of the disease itself. Fourteen other patients had severe constitutional symptoms, as the effect from the vaccination. There were 9 cases of influenza among the 444 unvaccinated, of whom 7 developed pneumonia and 4 died, making a morbidity rate of 1.5 per cent. and a mortality rate of 44 per cent. Of the 563 vaccinated patients 9 developed influenza, one being complicated with pneumonia. None of the vaccinated cases were fatal. The morbidity rate in this group was 2 per cent. In this institution the incidence was too small in both the vaccinated and unvaccinated groups to draw any conclusion as to the value of vaccine.

*Westborough State Hospital* consists of a total population of 1,238, of whom 506 were vaccinated. Fifteen of the vaccinated developed influenza, of whom 2 were complicated by a fatal pneumonia, giving a morbidity rate of 2.9 per cent. and a mortality rate of 13 per cent. Of 415 unvaccinated controls, 25 developed influenza (morbidity rate of 5.9 per cent.), of whom 6 were complicated by pneumonia. There were no fatalities. One hundred and twenty-one of the vaccinated patients had more or less severe constitutional symptoms as a result of their inoculations. In this institution vaccinations were begun when the disease had just broken out in the community. The Lyman School near by had been severely attacked. At the time the vaccinations were completed only 13 cases had developed influenza. If evidence as to the usefulness of the vaccine had been based on an institution under these conditions one might infer that the use of the vaccine had prevented the further spread of the disease. The Monson experiment shows conclusively the error one might fall into by so concluding. The incidence of the disease in this institution is typical of a mild epidemic. The reasons for this are inexplicable in the present state of our knowledge as to the mode of spread of the disease.

*Psychopathic Hospital.* — Vaccine was used in the Psychopathic Hospital among a few of the new patients, but the ever changing population in that institution — it being largely an observation hospital — did not permit of the accumulation of any valuable statistics.

*Worcester State Hospital,* consisting of a total population of 1,542, used the vaccine after the epidemic was entirely over. Statistics from this institution, therefore, were of no value in determining the prophylactic merit of the vaccine.

*Reformatory for Women* at Sherborn, consisting of a total population of 360, had 3 cases of influenza when the epidemic first broke out. There were no additional cases up to November 30. The vaccine was used on a limited number of cases there after the infection had reached its height in the surrounding community.

*Bridgewater State Hospital,* consisting of a total population of 853 adults, is included because the morbidity and mortality rates of this group, where no vaccine was used, does not differ greatly from those at Monson, where the conditions for the experiment were ideal. The morbidity rate was 29.9 per cent., as contrasted with 32.9 per cent. among the unvaccinated of Monson. The mortality rate among the vaccinated at Monson was 5 per cent. higher than at Bridgewater, although the rate among the entire population at Monson was slightly higher, being 15 per cent., as compared with 12 per cent. at Bridgewater.

## SUMMARY.

This was an experimental study which involved the vaccination of over 6,000 individuals, representing slightly less than one-half the population of twelve institutions, with a heated suspension of influenza bacilli. Of the institutions represented, only one, the Monson State Hospital, proved to be suitable for conducting the experiment, upon which the following conclusion is based.

*Conclusion.* — The heated suspension of influenza bacilli used as a prophylactic vaccine did not prevent influenza, lessen its severity nor its complications, and, as far as could be ascertained, resulted in no harm.

NOTE. — Acknowledgment is hereby made for the valuable services rendered by the United States Public Health Service through Dr. Warren S. Draper. During the first part of this experiment Dr. C. J. Longstreet of the Public Health Service worked at Monson and Northampton. His recall to another service necessitated the assumption of his work by one of us, Dr. Edna S. Kane.

THE COMMONHEALTH.

Monthly Bulletin of the Massachusetts State Department of Health.

*Sent Free to any Citizen of the State.*

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

*The Approach of the Annual Town Meeting.* — This is the season of the annual town meeting. It is to be hoped that this year, to a degree greater than ever before, the attention of the voters will be drawn to measures of importance to the public health. Why should not some of the money that had to be appropriated last year for purely warlike purposes be spent this year in making the children physically fit for any emergency whether of war or of peace? Physical education, adequate school hygiene, more public health nurses, better health officers, — all these make for greater efficiency and so for better citizenship.

*New Legislation.* — We need this year some recognition of the facts brought out by the war. Chief among these facts is that about a third of our male population is not able to stand the physical strain of war because of mental or physical defects. What are we going to do about it — accept it as an unavoidable thing or try to prevent such a state of affairs in the future?

The only way to prevent physical inefficiency is to attack the problem in the child. All persons of good judgment who know the facts are agreed on this. Now, if we are to have physical efficiency in the children we must have physical education. At no other period of life is it possible to reach all the citizens of the community so readily as during the school age, when things are easily learned and retained. Correct posture, proper habits of eating, drinking and sleeping, and the other simple rules of right living once acquired are never lost. Fresh air and exercise become a necessity and a half-yearly visit to the dentist a matter of ordinary routine.

A comprehensive scheme of school hygiene is in order. This should include adequate medical examinations, correction of defects, careful instruction and supervision in building up correct physical and mental habits. Massachusetts now has a system of medical school inspection which is valuable, but which could easily be improved. There is need of standards which will co-ordinate the work done in the different cities and towns. Most towns need a much higher standard of medical school supervision. We need many more school nurses to do follow-up work in the homes of the school children. The school physician should work hand in hand with the physical instructor, for it is necessary first to know a child's real physical condition before determining what he needs to bring him to normal or to keep him at normal.

The all-round physical and mental improvement of the school child will bring in returns to the community both in better utilization of the educational opportunities of the school, and later, in improved citizenship.

## NEWS ITEMS.

*Weighing and Measuring Tests.* — Further reports are as follows: Stoughton, 322 children examined, with 112 below the average; no follow-up work yet on account of the influenza; Wrentham, 69 examined, with 21 below the average; Great Barrington, 244 examined, with 99 below the average, the visiting nurse to follow up these cases; Chicopee, 288 examined, with 117 below the average, to be followed up by nurse.

Beverly is doing excellent child welfare work. All children who were found by the weighing and measuring test to require follow-up care are being supervised by Miss Mary Van Zile and her assistant, Miss Hermon.

Miss Lydia J. Springer, a graduate of the Massachusetts General Hospital, is the new public health nurse in Belmont.

An automobile was presented to the Winchester Visiting Nursing Association by Mr. William I. Palmer.

Public health nursing is making great strides in Chelsea under the able leadership of Miss Armenia Young. Miss Young is a graduate of the School of Public Health Nursing of Boston.

An elective course in home nursing and first aid is given in the Winchester High School by Miss Constance E. Talpey, R.N., the school nurse. An important part of this course is on the care of babies, which is taught by talks and demonstrations rather than by textbooks. Four of the former pupils of this course are now studying nursing in various hospitals.

*Course in Industrial Nursing.* — The School of Public Health Nursing conducted by Simmons College and the Instructive District Nursing Association, 561 Massachusetts Avenue, Boston, announces the following: The School of Public Health Nursing announces a special course in preparation for nursing in industrial and mercantile establishments. This course extends over five months, beginning Feb. 1, 1919. The work of the first four months, which is identical with that of the four months' course described in the announcement of the school, is designed to provide training in the fundamentals of public health nursing. The work of the fifth month consists of lectures and conferences on problems of industrial welfare, and practical work under the supervision of the nurse in one or more industries.

Admission: The course is open to registered nurses, graduates of approved training schools, who show evidence of personal fitness for industrial nursing. Qualified nurses who have at any time completed the eight months' or the four months' course in public health nursing may be admitted to the final month of the course.

Fees: The tuition fee for the entire course is $30; for the final month only, $10. The course may be withdrawn if fewer than ten applicants are accepted.

For application blanks and further information apply to the Director, School of Public Health Nursing, 561 Massachusetts Avenue, Boston, Mass.

*Industrial Nurses Annual Meeting.* — The third annual meeting of the New England Industrial Nurses' Club was held on Saturday evening, January 11, in the reception room of the World's Christian Endeavor Building, Boston. An interesting annual report was read by the secretary, Mrs. Bisbee, of the American Net and Twine Company, Cambridge. About seventy-five members and friends were present. There was an illustrated address on "What the Industrial Nurse should know about Child Labor." Dr. Merrill E. Champion of our State Department of Health made a short address. Mrs. Anna M. Staebler of the Massachusetts Commission on Health in Industry presided.

This club is growing rapidly and has representatives on its membership roll from all of the New England States.

The meetings are held at 3 Joy Street, on the second Saturday evening in the month.

Employers realize that the club meetings are of such value to their nurses that they invariably pay their traveling expenses in order that they may attend.

*Child Welfare in Vocational Schools.* — In September an Outline for a Course on Child Welfare was prepared by the State Department of Health, with the approval and co-operation of the State Board of Education. This outline, serving only as a guide for the teachers, was intended primarily for use in vocational schools, but is being used equally well in the ordinary public school, as is shown by their demand for the published outline.

Two conferences for directors and instructors of State-aided Vocational Schools were called at the State House on Dec. 7, 1918, and

Jan. 11, 1919, by the State Board of Education, the purpose of which was to present the content of the outline, with methods of instruction, as usable in vocational classes. The specialists who prepared the course on child welfare explained and discussed the outline in terms of lessons directly usable in vocational classes.

The first conference was attended by fifteen directors of State-aided Vocational Schools.

The second meeting, held January 11, was attended by directors, instructors in home nursing and subjects relative to child welfare work, and representatives from the higher educational institutions which are training teachers for child welfare work.

*Children's Cottage on the Common.* — The Children's Cottage on Boston Common is again open to the public as a center of information along all lines of child care and child food and health. Exhibits of food, of clothing and playthings of children will be at the cottage from time to time.

Bulletins and books on child care, food and play may be received by coming to the Children's Cottage any time from 10 A.M. to 5 P.M. on Tuesdays, Wednesdays, Thursdays and Fridays of each week. An expert is in charge on each of those days.

The Holyoke child welfare chairman of the Council of National Defence reports that the work along child welfare lines is progressing rapidly. Some of the extension work, which we have been looking forward to since the inception of the semi-municipal baby-saving work here in Holyoke in 1911, has already become a fact. We have been able to emphasize the need of still further work, through the pressure of the Child Welfare Committee and its co-operation with us, until we find our work and our needs given consideration in the inaugural address of our mayor, and promises made of an appropriation to meet these needs.

## RÉSUMÉ OF COMMUNICABLE DISEASES.

### November, 1918.

### *General Prevalence.*

The total number of cases reported for the month of November of this year was 18,852, with a case rate per 100,000 population of 480.8, as compared with 6,052 cases for November, 1917, with a case rate of

157.2. The increase was due entirely to reported cases of influenza, of which there were 14,750. The recrudescence of influenza which has occurred in all other countries which have been infected has occurred in this State. The infection is less intense, the illness of shorter duration, and there are apparently not as many severe pneumonias following. The total reported incidence of cases does not by any means show the true picture for the State, for, with the exception of diphtheria, scarlet fever and pulmonary tuberculosis, a decrease was shown in all of the reportable diseases from the preceding month.

*Diphtheria* was reported in 532 instances, as compared with 1,181 for the corresponding month of 1917, and an increase of 122 cases over October, 1918.

*Lobar Pneumonia.* — The greatest decrease was shown in number of all cases reported; 617 cases were reported this month, as compared with 3,997 for the preceding month.

It is, of course, apparent that the excessive number of lobar pneumonias reported for October is due to the fact that many influenza cases developed a pneumonia, and this was reported as a lobar pneumonia. Inasmuch as there was no way of differentiating in this office the true lobar from the other forms of pneumonia, there was no other alternative but to record these forms of pneumonia as reported.

*Measles* were reported this month in only 179 instances. In November, 1917, 1,232 cases were reported and 318 for October, 1918. This is the smallest number of cases of measles reported for at least three years.

*Scarlet fever* showed a slight increase in number of reported cases, there being 287 cases reported this month, as compared with 225 for October.

*Typhoid fever* was reported in but 51 instances during November, as compared with 97 cases for the previous month, and 120 cases for the corresponding month of 1917.

The decrease can be attributed to two factors, as follows: —

1. On account of the confusion associated with the pandemic of influenza many cases were incorrectly diagnosed.

2. The local boards of health, realizing the importance of seeking the source of their infection, have adopted the more modern and scientific methods employed for the detection of carriers; more careful supervision of their acutely ill cases and the use of laboratory examination for the final release from quarantine, many boards asking for at least two negative stools before patient is released.

*Influenza.* — The expected recrudescence of influenza has occurred and is present in all sections of the State. It appears that the infection is more mild in type, symptoms and complications.

*Venereal Diseases.* — Gonorrhœa and syphilis each showed increase in number of reported cases for the month. It is still believed that not over one-third of the actual cases are as yet reported, but a gradual improvement is noted.

*Smallpox.* — Three cases were reported during the month. Two were fishermen who came into Gloucester on a fishing boat. All contacts were vaccinated and no new cases developed. One case in West Springfield was found to have been imported from a neighboring State. It was a mild infection and with the usual precautions taken no further cases developed.

### *Outbreaks.*

The only outbreak of importance, save that of influenza, was typhoid, which occurred in Beverly. In the last three months, 33 cases were reported. Investigation proved that a milkman in New Hampshire was an intermittent carrier who gave positive laboratory findings for blood and stools. His milk was excluded and the outbreak seems to be at an end.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Boston, 2; Mendon, 1; Milford, 1; Lowell, 1; Medford, 1; Ware, 1; total, 7.

*Anthrax* was reported from Boston, 1; Bolton, 1; Camp Devens, 1; total, 3.

*Dog-bite requiring anti-rabic treatment* was reported from Worcester, 2; Lowell, 1; New Bedford, 1; total, 4.

*Dysentery* was reported from Sutton, 4; New Bedford, 1; Somerville, 1; total, 6.

*Epidemic cerebrospinal meningitis* was reported from Boston, 7; Pittsfield, 2; Malden, 1; Somerville, 1; Quincy, 1; Medford, 1; Montague, 1; Hudson, 1; Lynn, 1; Salem, 1; Camp Devens, 1; Clinton, 1; total, 19.

*Malaria* was reported from Natick, 1; Lynn, 1; total, 2.

*Pellagra* was reported from Northampton, 1.

*Septic sore throat* was reported from Newton, 2; Boston, 1; Watertown, 1; total, 4.

*Trachoma* was reported from Boston, 3; Belmont, 1; Worcester, 1; total, 5.

*Tetanus* was reported from Cambridge, 1; Marion, 1; total, 2.

*Smallpox* was reported from Gloucester, 2; West Springfield, 1; total, 3.

## *Occupational Diseases.*

[Reported by the State Board of Labor and Industries.]

| DISEASE. | Occupation. | Locality. | Sex. | Age. | Color. |
|---|---|---|---|---|---|
| Dermatitis, | Shoe treer, | Haverhill, | M | 24 | W |
| Nitric acid, | Worker, | Woburn, | M | 45 | W |

## *Distribution.*

### *All Communicable Diseases.*

| | October, 1918. | November, 1918. | November, 1917. |
|---|---|---|---|
| Total cases, | 95,351 | 18,852 | 6,052 |
| Case rate per 100,000 population, | 2,431.8 | 480.8 | 157.2 |

### *Certain Prevalent Diseases.*

| | October, 1918. | November, 1918. | November, 1917. | Cities and Towns noticeably exceeding their Endemic Indexes.[1] |
|---|---|---|---|---|
| Diphtheria: — | | | | Palmer, (3) 7<br>Mansfield, (0) 4<br>Peabody, (2) 12<br>Wakefield, (0) 4<br>Lowell, (32) 49<br>Somerville, (28) 46<br>Newton, (4) 18<br>Easthampton, (3) 6<br>Northampton, (2) 5 |
| Total cases, | 410 | 532 | 1,181 | |
| Case rate per 100,000, | 10.5 | 13.6 | 30.7 | |
| Lobar pneumonia: — | | | | |
| Total cases, | 3,797 | 617 | 290 | |
| Case rate per 100,000, | 96.8 | 15.7 | 7.5 | |
| Measles: — | | | | |
| Total cases, | 318 | 179 | 1,232 | |
| Case rate per 100,000, | 8.1 | 4.6 | 32.0 | |
| Scarlet fever: — | | | | Mansfield, (1) 3<br>Franklin, (2) 8<br>Gloucester, (2) 12<br>Salem, (2) 18<br>Colrain, (0) 4<br>Greenfield, (1) 8 |
| Total cases, | 225 | 287 | 587 | |
| Case rate per 100,000, | 5.7 | 7.3 | 15.3 | |
| Typhoid fever: — | | | | Amherst, (0) 4<br>Beverly, (1) 3 |
| Total cases, | 97 | 51 | 120 | |
| Case rate per 100,000, | 2.5 | 1.3 | 3.1 | |
| Whooping cough: — | | | | |
| Total cases, | 333 | 216 | 421 | |
| Case rate per 100,000, | 8.5 | 5.5 | 10.9 | |
| Tuberculosis, pulmonary: — | | | | |
| Total cases, | 442 | 529 | 702 | |
| Case rate per 100,000, | 11.3 | 13.5 | 18.2 | |
| Tuberculosis, other forms: — | | | | |
| Total cases, | 24 | 45 | 85 | |
| Case rate per 100,000, | .6 | 1.1 | 2.2 | |

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[1] Endemic index signifies the average for five years of reported cases exclusive of epidemics. This index is applied to each city and town for each month for the more common communicable diseases. The numbers in parentheses after the names of each city and town indicate the endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## DECEMBER, 1918.

### *General Prevalence.*

The total number of cases reported for the month of December was 46,878, 42,018 of which were influenza cases, leaving a balance of 4,860 for the diseases usually reported.

*Influenza.* — A continuation and recrudescence of the pandemic has affected all parts of the State during the month. Estimating the virulence of the infection by death returns and the calls for assistance, it becomes plain that the outbreak is of less intensity.

*Lobar pneumonia* was reported in 1,202 cases, an increase of 586 cases over November. Many of these reported lobar pneumonias were without doubt of influenzal origin.

*Diphtheria* for December showed a slight increase over the preceding month, the total number of cases reported in December being 584, as compared with 532 for November.

*Scarlet Fever.* — The number of cases reported for the month of December was 393 cases, an increase of 106 cases over 287 reported in November.

*Measles* showed an increase of 167 cases for December, 346 cases being reported, as compared with 179 for November.

*Typhoid fever* showed a decrease in number of reported cases, as 44 cases were reported in December, while in November 48 cases were reported.

*Venereal diseases* continue to be steadily reported. There were 645 cases of gonorrhœa reported and 273 cases of syphilis. These figures do not by any means reflect the true picture.

*Whooping cough* was reported in 217 instances in December; 216 cases were reported in November.

### *Outbreaks.*

There has been no outbreak during the month other than the recrudescence of influenza. The incidence of the disease has been scattered throughout the State, with no city or town markedly exceeding its endemic index.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Chelsea, 1; Haverhill, 1; Topsfield, 1; total, 3.

*Dog-bite requiring anti-rabic treatment* was reported from Lawrence, 1.

*Dysentery* was reported from Lawrence, 1.

*Epidemic cerebrospinal meningitis* was reported from Arlington, 1; Boston, 4; Brookline, 1; Cambridge, 2; Camp Devens, 2; Fall

River, 1; Great Barrington, 2; Haverhill, 1; Malden, 1; Newton, 1; Northborough, 1; Salem, 2; Westfield, 1; Winthrop, 1; total, 21.

*Malaria* was reported from Boston, 1; Camp Devens, 1; Springfield, 1; total, 3.

*Septic sore throat* was reported from Boston, 2; Brookline, 1; Fall River, 3; Haverhill, 2; Salem, 1; Winchendon, 1; total, 10.

*Tetanus* was reported from Gloucester, 1; Wakefield, 1; total, 2.

*Trachoma* was reported from Boston, 5; Chelsea, 1; Gloucester, 1; Somerville, 1; Watertown, 1; total, 9.

### *Occupational Diseases.*

[Reported by the State Board of Labor and Industries.]

| DISEASE. | Occupation. | Locality. | Sex. | Age. | Color. |
|---|---|---|---|---|---|
| Dermatitis, . . . | Hog killer, . . . | Somerville, . . . | W | 36 | W |

### *Distribution.*

*All Communicable Diseases.*

| | December, 1918. | December, 1917. |
|---|---|---|
| Total cases (all causes), . . . . . . . . . | 46,878 | 7,583 |
| Case rate per 100,000 population, . . . . . . | 1,195.5 | 197.1 |
| Excluding influenza and venereal diseases: — | | |
| Total cases, . . . . . . . . . . . | 4,860 | 7,583 |
| Case rate per 100,000 population, . . . . . . | 123.8 | 197.1 |

*Certain Prevalent Diseases.*

| | December, 1918. | December, 1917. |
|---|---|---|
| Diphtheria: — | | |
| Total cases, . . . . . . . . . . | 584 | 1,155 |
| Case rate per 100,000 population, . . . . . . | 14.8 | 30.0 |
| Measles: — | | |
| Total cases, . . . . . . . . . . | 346 | 1,920 |
| Case rate per 100,000 population, . . . . . . | 9.6 | 49.9 |
| Scarlet fever: — | | |
| Total cases, . . . . . . . . . . | 393 | 673 |
| Case rate per 100,000 population, . . . . . . | 10.0 | 17.5 |
| Typhoid fever: — | | |
| Total cases, . . . . . . . . . . | 44 | 99 |
| Case rate per 100,000 population, . . . . . . | 1.1 | 2.6 |
| Whooping cough: — | | |
| Total cases, . . . . . . . . . . | 217 | 594 |
| Case rate per 100,000 population, . . . . . . | 5.5 | 15.4 |
| Tuberculosis, pulmonary: — | | |
| Total cases, . . . . . . . . . . | 538 | 615 |
| Case rate per 100,000 population, . . . . . . | 13.4 | 16.0 |
| Tuberculosis, other forms: — | | |
| Total cases, . . . . . . . . . . | 41 | 61 |
| Case rate per 100,000 population, . . . . . . | 1.0 | 1.6 |

# CHRONOLOGICAL SKETCH OF THE DEVELOPMENT OF THE PROGRAM FOR THE CONTROL OF VENEREAL DISEASES.

By Massachusetts State Department of Health.

ALTHOUGH the bacteriological investigation of infectious diseases had been carried on for many years by the State Board of Health, it was not until October, 1914, that smears for the detection of gonococcus were examined and reported on. This marked the first practical step toward the control of either syphilis or gonorrhœa.

**1914.** — This work was provided for by an act of Legislature, approved April 6, 1914, by which "The sum of four thousand dollars was added to the appropriation of the state board of health for general expenses for the purpose of establishing laboratory facilities for the diagnosis of venereal diseases."

**1915.** — In the Bulletin for September, 1915, Dr. McLaughlin writes of syphilis as a public health problem. In this article he sketches the growth of the knowledge of syphilis as follows: —

**1903.** Metchnikoff and Roux transmitted syphilis to lower animals.
**1905.** Schaudinn discovered the cause: the treponema pallida.
**1906.** Wassermann, Neisser and Bruck gave us the Wassermann reaction.
**1910.** Ehrlich gave to the world salvarsan.
**1911.** Noguchi demonstrated treponema pallida in the brain of patients with general paresis, and in the cord of tabetic patients.

Dr. McLaughlin states that in his judgment the State Department of Health should take this attitude: —

1. Syphilis should be reportable in a modified way.
2. Wassermann tests should be made free of charge by the State upon request of physicians.
3. Salvarsan should be furnished free by the State to physicians for cases reported by number which have been found positive in a Wassermann laboratory.

The Wassermann laboratory commenced work June 1, 1915. During the first month 631 specimens were examined, and before the end of that year 25,000 had been examined at a cost to the State of 20 cents per test. During this year routine Wassermann examinations of the inmates of State institutions were begun.

Much attention was given by the Department to the increasing evidence of an amount of human suffering and impairment of efficiency which demanded immediate action on the part of the Department. The arguments brought forward at that time were: —

1. The far-reaching adverse effects of these diseases upon the general birth rate of a community.
2. The tendency of those infected with these diseases to bear children still-born, or those of a physically defective type that are born alive.
3. The prevalence of these diseases is of most far-reaching consequence, tending as they do to disrupt the very foundation of society itself through their sinister influence on a family unit. These effects are due partly to the high degree of permanent invalidism the diseases themselves produce, and partly to a tendency of syphilis to produce the most terrible, and for the community the most expensive, of all maladies, — insanity.
4. The well-known fact that fully 50 per cent. of all pelvic operations are more or less remotely due to an earlier infection of gonorrhœa by the patient.
5. The fact that gonorrhœa is responsible for at least 80 per cent. of blindness in the new born.

The State Department of Health at this time suggested, as an effective line of attack, the following program: —

Widespread utilization of laboratory service for the diagnosis of these diseases, including the Wassermann reaction for syphilis, and complement-fixation reaction for gonorrhœa, and immediate microscopical examination for the gonococcus and the *Spirochæta* for both. For syphilis, systematic treatment of active syphilitics, with the object in view of reducing the number of individuals who can act as foci of infection. This measure is now entirely practicable through the utilization of salvarsan. For gonorrhœa no process has yet been devised that will accomplish results similar to those of salvarsan. Two other great lines of attack lie open in the struggle against these diseases: they are public health education and hospitalization. Finally, in trying to arrive at a conclusion as to the relative practicability of agents in the struggle against these justly termed social maladies, it is of the utmost importance to remember that for the very reason that they are in no small degree social problems, moral education must go hand in hand with public health education if ultimate satisfactory results in diminished prevalence of these diseases are ever to be achieved. — ANNUAL REPORT OF 1915, PAGE 583.

**1916.** — The annual report for this year states: "To effectually combat syphilis facilities for the diagnosis thereof must be placed at the disposal of hospitals, dispensaries, health boards and physicians. Effective treatment should also be made available either free or at a reasonable price. The Department has now put the first measure into effect, and has made good progress toward the second."

The General Court of 1916 authorized the expenditure of $10,000 for research to produce a substance similar or analogous to salvarsan for free distribution in the Commonwealth.

During this year 25,497 Wassermann tests were made for State institutions, hospitals and practitioners, through the District Health Officers and the local boards of health. A clinic was held Tuesdays and Thursdays at the Wassermann laboratory at which persons could present themselves for the taking of the Wassermann test. During the year, 1,024 persons visited the laboratory for this purpose. During this year 1,308 smears were examined for gonorrhœa, 924 of which were taken for the State Board of Charity.

**1917.** — In February the Department succeeded in producing a specific remedy, an organic derivative of arsenic, which proves to be less toxic than other preparations for the same purpose. This work was carried out in the food and drug division though with considerable difficulty, partly owing to the crowded laboratory conditions and partly owing to the difficulty in securing the raw materials necessary. The technical difficulties involved have been extensive, but all have been successfully overcome. The substance obtained is free from properties which might act disastrously upon human beings, that is, it contains the required amount of arsenic in the nontoxic form.

Up to November 30 more than 160,000 Wassermann tests had been made free. The rapid increase in work in the Wassermann laboratory was due to the fact that it was made easier for physicians to make use of the laboratory through the co-operation of the boards of health.

Chapter 670 of the Acts of 1913, amended by section 8, chapter 75 of the Revised Laws, provides for the reporting of diseases declared dangerous to the public health in the manner already provided by statute, or in such other manner as the State Department of Health may deem advisable. Accordingly, on December 18, it was voted by the Public Health Council that syphilis and gonorrhœa be made reportable, as set forth in the following regulations, promulgated under chapter 670: —

Gonorrhœa and syphilis are reportable to State Department of Health direct, under authority of chapter 670, Laws of 1913, in accordance with the special regulations herewith promulgated.

### Regulations governing the Reporting of Gonorrhœa and Syphilis.

1. Gonorrhœa and syphilis are declared diseases dangerous to the public health and shall be reported in the manner provided by these regulations, promulgated under the authority of chapter 670, Laws of 1913.

2. Gonorrhœa and syphilis are to be reported (in the manner provided by these regulations) on and after Feb. 1, 1918.

3. At the time of the first visit or consultation the physician shall furnish to each person examined or treated by him a numbered circular of information and advice concerning the disease in question, furnished by the State Department of Health for that purpose.

4. The physician shall at the same time fill out the numbered report blank attached to the circular of advice, and forthwith mail the same to the State Department of Health. On this blank he shall report the following facts: —

Name of the disease.
Age.
Sex.
Color.
Marital condition and occupation of the patient.
Previous duration of disease and degree of infectiousness.

*The report shall not contain name or address of patient.*

5. Whenever a person suffering from gonorrhœa or syphilis in an infective stage applies to a physician for advice or treatment, the physician shall ascertain from the person in question whether or not such person has previously consulted with or been treated by another physician within the Commonwealth and has received a numbered circular of advice. If not, the physician shall give and explain to the patient a numbered circular of advice, and shall report the case to the State Department of Health, as provided in the previous regulation.

If the patient has consulted with or been treated by another physician within the Commonwealth, and has received the numbered circular of advice, the physician last consulted shall not report the case to the State Department of Health, but shall ask the patient to give him the name and address of the physician last previously treating said patient.

6. In case the person seeking treatment for gonorrhœa or syphilis gives the name and address of the physician last previously consulted, the physician then being consulted shall notify immediately by mail the physician last previously consulted of the patient's change of medical adviser.[1]

7. Whenever any person suffering from gonorrhœa or syphilis in an infective stage shall fail to return to the physician treating such person for a period of six weeks later than the time last appointed by the physician for such consultation or treatment, and the physician also fails to receive a notification of change of medical advisers as provided in the previous section, the physician shall then notify the State Department of Health, giving *name, address* of patient, name of the disease and serial number, date of report and name of physician originally reporting the case by said serial number, if known.

8. Upon receipt of a report giving name and address of a person suffering from gonorrhœa or syphilis in an infective stage, as provided in the previous section, the State Department of Health will report name and address of the person as a person suffering from a disease dangerous to the public health, and

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[1] In asking physicians to carry out the provisions of this section, the State Department of Health appreciates that it is asking more than is authorized by the authority of Chapter 670, Laws of 1913. This courtesy is requested, however, in the interest of the public health to protect the individual who has conformed with the Regulations laid down for him.

presumably not under proper medical advice and care sufficient to protect others from infection, to the board of health of the city or town of patient's residence or last known address. The State Department of Health shall not divulge the name of the physician making said report.

9. Whenever, in the opinion of the physician reporting the case, because of circumstances or conditions present, the protection of the public health demands immediate action by the local board of health, he shall forthwith report the facts as prescribed in Regulation 7 to the State Department of Health, which shall, in turn, proceed as prescribed in Regulation 8. (Adopted at a meeting of the Public Health Council May 21, 1918.)

**1918.** — At a meeting of the Public Health Council May 21, 1918, section 9 of these regulations was adopted, calling for the immediate reporting of cases by name in the event of their having lapsed treatment, or because of circumstances endangering the public health. These regulations were in force February 1, but the machinery for making the law operative was complete only about March 15. In May an appropriation of $30,000 was granted for the carrying out of this program providing for the manufacture of arsphenamine, for a subsidy of $1,000 to each of the 16 State-approved clinics, and for adequate personnel to put this program into effect. A subdivision of venereal diseases was created under the division of communicable diseases, the personnel of which consists of John J. Carroll, M.D., chief, Mary R. Lakeman, M.D., epidemiologist, Lily Owen Burbank, M.D., educational organizer, one clerical assistant and two stenographers.

The Boston Dispensary and the Massachusetts General Hospital were already equipped at this time and running successful, large clinics, while the City Hospital and the Massachusetts Homœopathic Hospital were caring for such cases as came to them. All of these are now State-approved clinics, and the Massachusetts Homœopathic Hospital has further offered accommodations for twenty bed cases in women. Outside the city of Boston the following clinics are in operation: —

Attleboro.
Brockton.
Fall River.
Fitchburg.
Lawrence.
Lowell.
Lynn.
New Bedford.
Pittsfield.
Worcester.

Subordinate clinic: —
Salem.

Clinics will soon be opened in Springfield and Holyoke, and subsidiary clinics in Haverhill and Newburyport.

A bill to prohibit the dispensing by druggists of remedies for the treatment of venereal diseases was introduced in the Legislature, but was lost.

In outline the program has been worked out as follows: —

1. Free diagnostic facilities are available for Wassermann tests at the State Laboratory; for bacteriological examination of smears at the bacteriological laboratory, Room 527, State House. Service in these laboratories is free and available to all physicians. Containers will be sent on request.

2. Free treatment facilities are provided for all unable to pay for treatment at the clinics mentioned. Evening hours are available in most of these clinics, and a follow-up system insures the continuance of treatment until such time as the patient is rendered noninfectious.

3. The reporting of venereal diseases has met with encouraging response at the hands of the medical profession, as is indicated by the following figures: —

| | |
|---|---|
| Gonorrhœa, | 8,950 |
| Syphilis, | 3,922 |
| | 12,872 |

Of total cases reported by number, 12.5 per cent. have been reported back by name because of lapsing treatment. Of these an average of 44.5 per cent. have been replaced under treatment.

4. In the elimination of quacks a few cases brought into court for irregularities in the handling of venereal diseases have afforded evidence of the intention of the Department to see that the law is enforced with regard to these two diseases.

5. With regard to the prevention of drug-store prescribing, several instances have occurred in which leading organizations of druggists have formally pledged themselves to prohibit the sale of remedies commonly used for the treatment of venereal diseases. This action has been taken voluntarily, and it may be stated with confidence that but little drug-counter prescribing is being done in the larger and well-established drug stores.

6. The examination and treatment of prisoners is being carried out in all of the larger, and many smaller, penal institutions. Persons whose sentence expires while their disease is still active are detained until they are rendered noninfectious.

## REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of November and December, 1918, samples were collected in 51 cities and towns.

There were 1,084 samples of milk examined, of which 245 were below the legal standard, 5 samples were skimmed milk above the legal standard, 38 samples were skimmed milk not marked, and 56 samples contained added water.

There were 273 samples of food examined, of which the following were adulterated: 1 sample of butter which contained an excess of water; 1 sample of sweet cider which contained more than 1 per cent. of alcohol; 4 samples of condensed milk, 1 being made from partially skimmed milk and 3 being decomposed; 1 sample of fish and 1 sample of shrimp which were both decomposed; 2 samples of sausage which contained coloring matter; 5 samples of olive oil which contained cottonseed oil; 3 samples of clams and 1 sample of scallops which were watered; 1 sample of cream which was below the legal standard; and 60 samples of eggs which were either decomposed, stale eggs sold as fresh eggs, or were cold-storage eggs not marked.

There were 5 samples of drugs examined, 1 sample of bay rum being adulterated.

The police departments submitted 17 samples of liquor and 20 samples of poisons for examination.

There were 27 convictions for violations of the laws, $400 in fines being imposed. Frederick Bohenberger of Stoughton, on two counts, James Peterson of West Bridgewater, Alex Arab of Lawrence, Alfred M. Babson of Norton and Edward D. Trainor of Malden were all convicted for violation of the milk laws. John Moustos of Boston, on four counts, was convicted for violation of the food laws, and appealed his cases. Dolphis Belleville, Phillip Bogdonoff, George Bary, Arthur Demers, Hermelia Demers, Alvala Desrosiers, George Dion, Joseph A. Kerzeniewski, Arthur Lavoie, Wilfred Marion, Maurice Perlman and Paul Vigeant, all of Lowell, James Croteau, Waclaw Juchniewicz and Moses A. Stevens, all of Newburyport, Edward Ostropolsky and Santo Sapienza of Lawrence were all convicted for violation of the cold-storage laws.

There were 17 confiscations made, consisting of 235 pounds of decomposed frankforts, 200 pounds of decomposed pigs' plucks, 900 pounds of decomposed pork (spare ribs), 20 pounds of sour chickens, 148½ pounds of decomposed turkey, 202 pounds of decomposed geese and 5,047 pounds of beef, of which 4,082 pounds were decomposed, — 615 pounds which was the carcass of an animal that died a natural death and 350 pounds which was the carcass of an animal that was tubercular; 40 pounds of immature veal, 49,960 pounds of decomposed codfish, and a 215-pound carcass of diseased pork.

In accordance with the Acts of 1902, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: 3 samples of watered milk, produced by Nathan H. Nutter of Woodsville, N. H.; 4 samples of watered milk, produced by Mariano C. Leit of North Dartmouth; 6 samples of watered milk, produced by John E. Silver of North Dartmouth; 4 samples of watered milk, produced by Manuel Rogers of North Dartmouth; 2 samples of watered milk, produced by H. A. Hollywood of New Bedford; 3 samples of skimmed milk not marked, produced by Hyman Pearlstein of Rockville; adulterated olive oil, manufactured by Moustos & Coustis of Boston; and misbranded eggs, sold by Ginter Company of Somerville, James Van Dyk Company of Worcester and the Atlantic and Pacific Tea Company of Melrose.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of October, 1918: 959,590 dozens of case eggs, 214,011 pounds of broken-out eggs, 3,294,634 pounds of butter, 1,119,135 pounds of poultry, 7,782 pounds of game, 9,866,661 pounds of fresh meat and fresh meat products, and 3,905,524 pounds of fresh food fish.

There were on hand in storage on Nov. 1, 1918, 13,047,600 dozens of case eggs, 418,312 pounds of broken-out eggs, and 16,375,372 pounds of butter.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of November, 1918: 406,050 dozens of case eggs, 180,439 pounds of broken-out eggs, 3,236,785 pounds of butter, 2,965,025 pounds of poultry, 13,415 pounds of game, 9,780,602 pounds of fresh meat and fresh meat products, and 2,973,887 pounds of fresh food fish.

There were on hand on Dec. 1, 1918, 9,003,143 dozens of case eggs, 327,007 pounds of broken-out eggs, and 14,248,021 pounds of butter.

## REPORT UPON THE WORK OF THE BACTERIOLOGICAL LABORATORY FOR THE MONTHS OF NOVEMBER AND DECEMBER, 1918.

The total number of examinations made was 2,805, divided as follows: Diphtheria, 1,412, including 148 cultures for diagnosis which proved positive and 188 taken for release which proved positive; tuberculosis, 502 examinations, of which 122 were positive; Widal test for typhoid, 153 examinations, of which 41 were positive; culture tests for typhoid bacilli, 62 examinations, with 11 positive; malaria, 7 examinations, with none positive; gonorrhœa, 473 examinations, including 65 positive; and 195 miscellaneous examinations.

# CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1918. | 19A<br>Chicken Pox. | | 9<br>Diphtheria. | | 61A<br>Cerebrospinal Meningitis. | | 19B<br>German Measles. | | 92<br>Lobar Pneumonia. | | 6<br>Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,920,988 | 74 | – | 410 | **58** | 32 | **15** | 15 | – | 3,797 | **3,210** | 318 | **21** |
| 2 | Cities over 200,000. | | | | | | | | | | | | | |
| 3 | Boston, | 793,471 | 14 | – | 90 | **17** | 8 | **2** | 2 | – | 487 | **265** | 17 | **2** |
| 4 | Cities, 150,000–200,000. | | | | | | | | | | | | | |
| 5 | Worcester, | 173,419 | 2 | – | 17 | **3** | – | – | – | – | 381 | **275** | 10 | **1** |
| 6 | Cities, 100,000–150,000. | *578,593* | *12* | – | *86* | *12* | *4* | *2* | *4* | – | *689* | *662* | *44* | *4* |
| 7 | Fall River, | 128,317 | 1 | – | 11 | **2** | 1 | – | 1 | – | 154 | **159** | 22 | **1** |
| 8 | New Bedford, | 117,855 | – | – | 16 | **7** | – | **1** | – | – | 88 | **153** | 1 | – |
| 9 | Springfield, | 111,983 | 5 | – | 13 | **2** | 1 | **1** | 1 | – | 335 | **141** | 2 | – |
| 10 | Cambridge, | 111,379 | 2 | – | 26 | – | 2 | – | 2 | – | 58 | **105** | 6 | – |
| 11 | Lowell, | 109,059 | 4 | – | 20 | **1** | – | – | – | – | 54 | **104** | 13 | **3** |
| 12 | Cities, 50,000–100,000. | *569,719* | *11* | – | *65* | *9* | *5* | *4* | *4* | – | *570* | *404* | *15* | *1* |
| 13 | Lynn, | 99,952 | – | – | 17 | **1** | – | – | 3 | – | 59 | **41** | 8 | **1** |
| 14 | Lawrence, | 93,060 | 1 | – | 9 | **1** | 1 | – | – | – | 59 | **73** | 1 | – |
| 15 | Somerville, | 93,026 | 1 | – | 13 | **2** | – | – | – | – | 43 | **29** | 2 | – |
| 16 | Brockton, | 65,746 | 1 | – | 2 | – | – | – | – | – | 35 | **18** | 1 | – |
| 17 | Holyoke, | 62,796 | – | – | 4 | **2** | – | – | – | – | 37 | **70** | – | – |
| 18 | Haverhill, | 52,873 | 7 | – | 7 | **1** | – | **1** | 1 | – | 317 | **103** | 2 | – |
| 19 | Malden, | 51,798 | – | – | 7 | **2** | – | – | – | – | – | **36** | – | – |
| 20 | Chelsea, | 50,468 | 1 | – | 6 | – | 4 | **3** | – | – | 20 | **34** | 1 | – |
| 21 | Cities and Towns, 25,000–50,000. | *487,764* | *13* | – | *49* | *3* | *1* | *2* | – | – | *401* | *437* | *43* | *4* |
| 22 | Quincy, | 45,827 | – | – | 12 | – | – | – | – | – | 9 | **22** | – | – |
| 23 | Newton, | 45,234 | 3 | – | 10 | **2** | – | – | – | – | 13 | **11** | – | **1** |
| 24 | Pittsfield, | 44,410 | 5 | – | 1 | – | – | **1** | – | – | 77 | **82** | 1 | – |
| 25 | Salem, | 41,082 | 3 | – | – | – | – | – | – | – | 69 | **25** | – | – |
| 26 | Fitchburg, | 40,830 | – | – | 6 | – | – | – | – | – | 162 | **96** | 7 | **1** |
| 27 | Everett, | 40,435 | – | – | 1 | – | – | – | – | – | 30 | **46** | 1 | – |
| 28 | Taunton, | 37,381 | – | – | 1 | – | – | – | – | – | 11 | **59** | 10 | – |
| 29 | Brookline, | 37,147 | 2 | – | 1 | – | – | – | – | – | 13 | **17** | – | – |
| 30 | Medford, | 35,230 | – | – | 3 | – | – | – | – | – | – | **16** | 1 | – |
| 31 | Chicopee, | 33,177 | – | – | 3 | **1** | 1 | **1** | – | – | 11 | **18** | – | – |
| 32 | Waltham, | 31,643 | – | – | 1 | – | – | – | – | – | – | **18** | 22 | **2** |
| 33 | Revere, | 29,643 | – | – | 7 | – | – | – | – | – | 1 | **18** | – | – |
| 34 | Beverly, | 25,725 | – | – | 3 | – | – | – | – | – | 5 | **9** | 1 | – |
| 35 | Cities and Towns, 10,000–25,000. | *575,996* | *8* | – | *53* | *7* | *3* | *5* | *1* | – | *535* | *537* | *41* | *3* |
| 36 | Gloucester, | 24,529 | – | – | 1 | – | – | **1** | – | – | 3 | **30** | – | – |
| 37 | Northampton, | 23,081 | – | – | 3 | **2** | – | – | – | – | 11 | **4** | – | – |
| 38 | North Adams, | 22,045 | – | – | – | – | – | – | – | – | 9 | **18** | – | – |
| 39 | Peabody, | 20,489 | 3 | – | 5 | – | – | – | – | – | 12 | **14** | – | – |
| 40 | Attleboro, | 19,933 | – | – | 2 | **1** | – | – | – | – | 33 | **36** | 1 | – |
| 41 | Westfield, | 19,929 | – | – | 3 | **1** | – | – | – | – | 57 | **23** | 1 | – |
| 42 | Watertown, | 18,851 | – | – | 5 | – | 1 | – | – | – | 18 | **18** | 3 | – |
| 43 | Framingham, | 17,728 | – | – | 3 | – | – | – | 1 | – | 3 | **4** | – | – |
| 44 | Leominster, | 17,688 | – | – | 5 | **2** | – | – | – | – | 57 | **32** | 29 | – |
| 45 | Melrose, | 17,627 | – | – | 1 | – | – | – | – | – | 23 | **18** | – | – |
| 46 | Gardner, | 17,451 | 1 | – | 5 | – | – | – | – | – | 32 | **47** | – | – |
| 47 | Arlington, | 17,264 | – | – | 1 | – | – | – | – | – | 6 | **12** | – | – |
| 48 | Woburn, | 17,116 | – | – | – | – | – | – | – | – | 8 | **2** | – | – |
| 49 | Marlborough, | 15,680 | – | – | 2 | – | – | – | – | – | 5 | **9** | – | – |
| 50 | Methuen, | 15,649 | – | – | – | – | – | – | – | – | 1 | **5** | – | – |
| 51 | Newburyport, | 15,542 | – | – | – | – | – | – | – | – | 1 | **17** | – | – |

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[1] Deaths are available for publication each month, through the courtesy of the Secretary of the and correction, these deaths, while approximately correct, are not absolutely complete.

## TO THE PUBLIC HEALTH,[1] OCTOBER, 1918.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28-29 Tuberculosis Pulmonary. | | 30-35 Tuberculosis Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 80 | - | 21 | - | 4 | - | 174 | - | 225 | 5 | 467 | 494 | 25 | 50 | 99 | 35 | 494 | 1 | 181 | 17 | 333 | 151 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 26 | - | 8 | - | 3 | - | 17 | - | 34 | 1 | 166 | 85 | 8 | 12 | 7 | 3 | 262 | - | 104 | - | 76 | 30 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 2 | - | 3 | - | - | - | - | - | 11 | - | 19 | 18 | - | 2 | 4 | 4 | 22 | - | 13 | 5 | 2 | - | 5 |
| *22* | - | *3* | - | - | - | *11* | - | *26* | *1* | *75* | *105* | *6* | *12* | *15* | *8* | *74* | - | *16* | - | *88* | *37* | *6* |
| 8 | - | 1 | - | - | - | 3 | - | 5 | - | 23 | 30 | 1 | 5 | 6 | 5 | 13 | - | 2 | - | 34 | 6 | 7 |
| 8 | - | - | - | - | - | 2 | - | 2 | - | 12 | 24 | 3 | 4 | 3 | 1 | 9 | - | 3 | - | 7 | 8 | 8 |
| 4 | - | 1 | - | - | - | 6 | - | 8 | - | 10 | 14 | 2 | 1 | 2 | - | 29 | - | 3 | - | 21 | 10 | 9 |
| 1 | - | - | - | - | - | - | - | 1 | - | 18 | 16 | - | - | 4 | 2 | 16 | - | 5 | - | 18 | 7 | 10 |
| 1 | - | 1 | - | - | - | - | - | 10 | 1 | 10 | 21 | - | 2 | - | - | 7 | - | 3 | - | 8 | 6 | 11 |
| *18* | - | *4* | - | *1* | - | *4* | - | *21* | - | *53* | *48* | *4* | *9* | *8* | *3* | *43* | - | *18* | - | *36* | *16* | 12 |
| - | - | - | - | - | - | - | - | 1 | - | 9 | 9 | 1 | 2 | 3 | - | 9 | - | 7 | - | 8 | 2 | 13 |
| 1 | - | - | - | - | - | - | - | - | - | 8 | 11 | 1 | 3 | - | 1 | 4 | - | 3 | - | 6 | 3 | 14 |
| 4 | - | 1 | - | - | - | 1 | - | 5 | - | 6 | 4 | 1 | - | 2 | - | 5 | - | 3 | - | 4 | 1 | 15 |
| 3 | - | - | - | - | - | - | - | 6 | - | 2 | 2 | 1 | 1 | 2 | 1 | 6 | - | - | - | 5 | 1 | 16 |
| 1 | - | - | - | - | - | - | - | 2 | - | - | 6 | - | - | - | - | 4 | - | - | - | 2 | 2 | 17 |
| 4 | - | - | - | - | - | 3 | - | 3 | - | 4 | 1 | - | 1 | - | 1 | 4 | - | 4 | - | 5 | 2 | 18 |
| - | - | 1 | - | - | - | - | - | 1 | - | 3 | 5 | - | 1 | 1 | - | 1 | - | - | - | 4 | 2 | 19 |
| 5 | - | 2 | - | 1 | - | - | - | 3 | - | 11 | 10 | - | 1 | - | - | 10 | - | 1 | - | 2 | 3 | 20 |
| *1* | - | *2* | - | - | - | *3* | - | *33* | *1* | *49* | *57* | *1* | *3* | *26* | *7* | *33* | *1* | *9* | *3* | *33* | *22* | 21 |
| - | - | - | - | - | - | - | - | 3 | - | 2 | 2 | - | - | 1 | - | 7 | - | 1 | - | - | 1 | 22 |
| - | - | - | - | - | - | - | - | 3 | - | 3 | 1 | 1 | 2 | - | - | - | - | 1 | - | 3 | - | 23 |
| - | - | - | - | - | - | 1 | - | 9 | - | 4 | 6 | - | - | 1 | - | 1 | - | 1 | - | 1 | 2 | 24 |
| - | - | - | - | - | - | - | - | 6 | 1 | 5 | 8 | - | - | 1 | 1 | 2 | 1 | 1 | - | - | - | 25 |
| - | - | - | - | - | - | - | - | 3 | - | 10 | 1 | - | - | - | - | 4 | - | 1 | 2 | 4 | 2 | 26 |
| - | - | 1 | - | - | - | - | - | 2 | - | 4 | 7 | - | - | 1 | - | 1 | - | 2 | - | 1 | - | 27 |
| - | - | 1 | - | - | - | - | - | 5 | - | 7 | 15 | - | - | - | - | - | - | - | 1 | 9 | 2 | 28 |
| - | - | - | - | - | - | - | - | - | - | 4 | 4 | - | - | - | - | 1 | - | 1 | - | - | - | 29 |
| 1 | - | - | - | - | - | - | - | - | - | 3 | 3 | - | - | 1 | - | 2 | - | - | - | - | 2 | 30 |
| - | - | - | - | - | - | 2 | - | - | - | 1 | 5 | - | - | - | - | 1 | - | - | - | - | - | 31 |
| - | - | - | - | - | - | - | - | - | - | 2 | 1 | - | 1 | - | 1 | 4 | - | - | - | 11 | 7 | 32 |
| - | - | - | - | - | - | - | - | 1 | - | 2 | 4 | - | - | 2 | 1 | 10 | - | 1 | - | - | 3 | 33 |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 19 | 4 | - | - | - | - | 4 | 3 | 34 |
| *7* | - | - | - | - | - | *28* | - | *44* | *1* | *33* | *59* | *2* | *6* | *14* | *5* | *29* | - | *11* | *2* | *56* | *20* | 35 |
| - | - | - | - | - | - | - | - | 3 | - | 1 | 2 | - | - | 5 | - | 2 | - | - | - | - | - | 36 |
| 1 | - | - | - | - | - | 11 | - | 3 | - | 3 | 5 | - | - | 1 | 1 | 2 | - | - | 1 | 5 | - | 37 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | - | - | - | - | - | - | - | - | 38 |
| - | - | - | - | - | - | - | - | 1 | - | 2 | 1 | - | - | - | - | 2 | - | 1 | - | - | 3 | 39 |
| - | - | - | - | - | - | - | - | - | - | 1 | 2 | - | - | 1 | 1 | 2 | - | 1 | - | 5 | 3 | 40 |
| - | - | - | - | - | - | 9 | - | 9 | - | 1 | 3 | - | - | 1 | - | 1 | - | - | - | 16 | 1 | 41 |
| 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | - | 5 | - | 42 |
| - | - | - | - | - | - | - | - | - | - | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - | 43 |
| - | - | - | - | - | - | - | - | 3 | - | 5 | 3 | - | - | 1 | - | 2 | - | 1 | - | 5 | 3 | 44 |
| 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | - | - | 45 |
| - | - | - | - | - | - | - | - | 2 | - | 3 | 2 | 1 | 1 | 1 | - | - | - | 2 | - | - | - | 46 |
| - | - | - | - | - | - | - | - | - | - | 2 | - | - | 2 | - | - | - | - | 1 | - | 4 | - | 47 |
| - | - | - | - | - | - | - | - | 9 | - | 1 | 2 | - | - | 1 | - | - | - | - | - | 1 | 1 | 48 |
| - | - | - | - | - | - | - | - | 1 | - | - | 3 | - | - | 1 | 2 | - | - | - | - | 4 | - | 49 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 50 |
| - | - | - | - | - | - | - | - | - | - | - | 5 | - | 1 | - | - | 1 | - | - | - | - | - | 51 |

Commonwealth. Owing to the delay by physicians in returning death certificates sent them for addition

## Cases and Deaths from Diseases Dangerous

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1918. | 19A Chicken Pox. Cases. | 19A Chicken Pox. Deaths. | 9 Diphtheria. Cases. | 9 Diphtheria. Deaths. | 61A Cerebrospinal Meningitis. Cases. | 61A Cerebrospinal Meningitis. Deaths. | 19B German Measles. Cases. | 19B German Measles. Deaths. | 92 Lobar Pneumonia. Cases. | 92 Lobar Pneumonia. Deaths. | 6 Measles. Cases. | 6 Measles. Deaths. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 52 | Southbridge, | 15,255 | 2 | – | – | – | – | – | – | – | 4 | 27 | – | – |
| 53 | Weymouth, | 14,659 | – | – | 3 | – | – | – | – | – | 3 | 18 | – | – |
| 54 | Winthrop, | 14,443 | 1 | – | – | – | – | – | – | – | 35 | 12 | 2 | – |
| 55 | Milford, | 14,088 | – | – | 1 | – | – | – | – | – | 30 | 13 | – | – |
| 56 | Greenfield, | 14,028 | – | – | 2 | – | 1 | 2 | – | – | 5 | 26 | – | 1 |
| 57 | Wakefield, | 13,664 | – | – | 2 | – | – | – | – | – | – | 3 | – | – |
| 58 | Plymouth, | 13,430 | – | – | 1 | – | – | – | – | – | 2 | 8 | 1 | – |
| 59 | Adams, | 13,340 | – | – | 1 | – | – | – | – | – | 4 | 5 | – | – |
| 60 | Clinton, | 13,266 | – | – | – | – | – | – | – | – | 40 | 8 | 2 | – |
| 61 | Webster, | 13,242 | – | – | – | – | – | – | – | – | 15 | 22 | – | – |
| 62 | Norwood, | 12,879 | – | – | – | – | – | 1 | – | – | 4 | 12 | – | – |
| 63 | West Springfield, | 12,696 | – | – | 2 | – | – | – | – | – | 22 | 17 | – | – |
| 64 | Danvers, | 12,309 | 1 | – | – | – | – | – | – | – | 55 | 27 | – | – |
| 65 | Dedham, | 12,172 | – | – | 2 | – | – | – | – | – | – | 6 | – | – |
| 66 | Natick, | 11,924 | – | – | – | – | 1 | 1 | – | – | 13 | 4 | – | – |
| 67 | Saugus, | 11,625 | – | – | – | – | – | – | – | – | – | – | – | – |
| 68 | Easthampton, | 10,692 | – | – | – | – | – | – | – | – | 1 | 6 | 2 | 2 |
| 69 | Athol, | 10,582 | – | – | – | – | – | – | – | – | 5 | 6 | – | – |
| 70 | Bridgewater, | 10,468 | – | – | – | – | – | – | – | – | – | 7 | – | – |
| 71 | Winchester, | 10,451 | – | – | – | – | – | – | – | – | 16 | 5 | – | – |
| 72 | Braintree, | 10,162 | – | – | – | – | – | – | – | – | – | 5 | – | – |
| 73 | Palmer, | 10,019 | – | – | 3 | 1 | – | – | – | – | 2 | 11 | – | – |
| 74 | TOWNS, 5,000–10,000. | *346,607* | *4* | – | *26* | *5* | *2* | – | *1* | – | *141* | *284* | *10* | *4* |
| 75 | TOWNS, 2,500–5,000. | *182,889* | – | – | *11* | *1* | – | – | – | – | *122* | *132* | *7* | *1* |
| 76 | TOWNS UNDER 2,500. | *212,530* | *5* | – | *13* | *1* | *1* | – | – | – | *138* | *99* | *4* | – |
| 77 | STATE INFIRMARY, | – | *4* | – | – | – | – | – | – | – | – | *8* | – | – |
| 78 | CAMP DEVENS, | – | *1* | – | – | – | *8* | – | *3* | – | *333* | *107* | *127* | *1* |

In addition to the above there occurred 7 cases of anterior poliomyelitis, 3 in Boston, 1 in Hadley, 1 in anti-rabic treatment), 1 in Ware and 1 in Worcester; 3 cases of dysentery in Sutton, with 4 deaths, 1 in and 1 in Natick; 2 cases of pellagra, 1 in Boston and 1 in Waltham, with 4 deaths, 1 in Boston, 1 in Gardhill, and 1 in Hull; 4 cases of tetanus, 2 in Boston, 1 in Lawrence, and 1 in Worcester, with 4 deaths, 2 in

TO THE PUBLIC HEALTH — *Concluded.*

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28-29 Tuberculosis Pulmonary. | | 30-35 Tuberculosis Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | Line No. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | |
| - | - | - | - | - | - | - | - | - | - | - | 2 | - | - | - | 1 | 1 | - | - | - | - | - | 52 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 53 |
| - | - | - | - | - | - | 1 | - | 2 | - | 2 | - | - | - | - | - | 1 | - | - | 1 | - | - | 54 |
| - | - | - | - | - | - | - | - | 2 | - | - | 2 | - | - | - | - | - | - | - | - | - | 2 | 55 |
| - | - | - | - | - | - | - | - | 4 | - | - | - | - | - | - | - | 1 | - | 1 | - | 2 | 2 | 56 |
| - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | 1 | - | - | - | - | - | 57 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | 1 | - | - | - | - | 2 | 58 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 59 |
| - | - | - | - | - | - | - | - | - | - | 1 | 3 | - | - | - | - | - | - | - | - | 1 | 1 | 60 |
| 2 | - | - | - | - | - | - | - | - | - | 1 | 5 | - | - | - | - | 1 | - | - | - | - | - | 61 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - | - | - | 62 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 63 |
| - | - | - | - | - | - | - | - | - | - | - | 3 | - | - | 1 | - | 1 | - | 3 | - | - | - | 64 |
| - | - | - | - | - | - | - | - | 4 | - | - | - | - | - | - | - | - | - | - | - | - | - | 65 |
| 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 66 |
| - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | 67 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - | - | - | 68 |
| - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 1 | 69 |
| - | - | - | - | - | - | - | - | - | - | - | 3 | 1 | - | 1 | - | - | - | - | - | - | - | 70 |
| - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | 6 | - | 71 |
| - | - | - | - | - | - | 1 | - | 1 | - | 2 | 3 | - | - | - | - | - | - | - | - | 2 | 1 | 72 |
| - | - | - | - | - | - | 6 | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 73 |
| *1* | - | *1* | - | - | - | *5* | - | *29* | - | *18* | *24* | *1* | *4* | *8* | *2* | *14* | - | *2* | *2* | *14* | *15* | 74 |
| *2* | - | - | - | - | - | *3* | - | *13* | - | *9* | *26* | - | - | *11* | *2* | *5* | - | *1* | *1* | *6* | *4* | 75 |
| *1* | - | - | - | - | - | - | - | *13* | - | *11* | *48* | - | - | *6* | *1* | *7* | - | - | - | *22* | *7* | 76 |
| - | - | - | - | - | - | - | - | - | - | *10* | *19* | *3* | *1* | - | - | *5* | - | *7* | *4* | - | - | 77 |
| - | - | - | - | - | - | *103* | - | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 78 |

Malden, 1 in Northampton, and 1 in Quincy, with 1 death in Malden; 2 cases of dog bite (requiring Blackstone, 2 in Holyoke and 1 in Leominster; 1 case of leprosy in Boston; 4 cases of malaria, 3 in Erving ner, 1 in Lowell and 1 in Waltham; 4 cases of septic sore throat, 1 in Boston, 1 in Fall River, 1 in Haver-Lawrence, 1 in Pittsfield and 1 in Worcester.

# MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

Commissioner of Health, Eugene R. Kelley, M.D.

## Public Health Council.

Eugene R. Kelley, M.D., *Chairman.*

Wm. T. Sedgwick, Ph.D.
George C. Whipple, S.B.
David L. Edsall, M.D.
Joseph E. Lamoureux, M.D.
Wm. J. Gallivan, M.D.
John T. Wheelwright.

| | |
|---|---|
| Division of Administration, . . . | —— —— |
| Division of Sanitary Engineering, . . | Director and Chief Engineer, X. H. Goodnough, C.E |
| Division of Communicable Diseases, . . | Director, John S. Hitchcock, M.D. |
| Division of Water and Sewage Laboratories, | Director and Chemist, H. W. Clark. |
| Division of Biologic Laboratories, . . | Director and Pathologist, Milton J. Rosenau, M.D. |
| Division of Food and Drugs, . . . | Director and Analyst, Hermann C. Lythgoe, S.B. |
| Division of Hygiene, . . . . | Director, Merrill E. Champion, M.D. |

## State District Health Officers.

| | |
|---|---|
| The Southeastern District, . . . | Charles W. Milliken, M.D., Barnstable. |
| The Eastern District, . . . . | Russell B. Sprague, M.D., Boston. |
| The Northeastern District, . . . | Lyman A. Jones, M.D., Swampscott. |
| The North Midland District, . . . | Charles E. Simpson, M.D., Lowell. |
| The South Midland District, . . | William W. Walcott, M.D., Natick.[1]<br>Arthur A. Brown, M.D., Worcester. |
| The Wachusett District, . . . . | Francis A. Finnegan, M.D., Fitchburg. |
| The Connecticut Valley District, . . | George T. O'Donnell, M.D., Springfield. |
| The Berkshire District, . . . . | Howard A. Streeter, M.D., Pittsfield. |

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[1] Leave of absence, military service.

# THE COMMONHEALTH

Vol. 6, Nos. 3-4 Mar.-Apr., 1919

## BI-MONTHLY BULLETIN

MASSACHUSETTS
STATE DEPARTMENT OF HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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# PUBLIC HEALTH NURSING IN A CITY.

By Florence M. Caldwell, R.N.

A CITY of 110,000 population with 25 nurses employed in public health work in its various branches may sound fairly well nursed.

Although the first visiting nursing done in our country was started over forty years ago, it has been only eleven years that any form of public health nursing has been done in this city. The first venture in the field was when an anti-tuberculosis association was formed, and employed a nurse to visit in the homes of patients discharged from its summer camp. It was not long after this before the attention of citizens was pointed toward the high infant mortality rate, so an effort was made in 1910 to reduce this economic loss in the opening of a milk station. This effort proved a success, and a graduate nurse was employed to dispense milk and to do some home visiting. Two years later we find a graduate nurse being sent out from one of the hospitals to do visiting nursing among its discharged patients. This nurse was also on call for other cases. This visiting service was supported by an individual. Then came the Visiting Nurse Association, which started by employing one nurse, and very soon took over the hospital visiting nurse. In the meanwhile, in 1913, the Board of Health got an appropriation for two school nurses, and there followed shortly after another nurse whose work was visiting tuberculosis and ophthalmia patients. Then came the Tuberculosis Dispensary with a dispensary clerk who did some visiting, and at about the same time the Department of the Overseers of the Poor employed a visitor who would likewise give nursing care to the sick who were under the care of that department.

The outcome of these various efforts along lines of public health nursing may be seen in the following list, which brings us up to the present time: —

- Board of health employing five school nurses.
- Board of health employing one tuberculosis and ophthalmia nurse.
- Visiting Nurse Association employing a staff of thirteen nurses.
- Industrial nurses, five.
- Undergraduate nurses in the field of public health nursing: —
  - Board of health visitor to tuberculosis, one.
  - Overseers of poor visitor and nurse, one.
  - Anti-Tuberculosis Association nurse, one.
  - Industrial nurses, five.

Besides these public health nursing agencies, the city has the usual assortment of social agencies, whose number, like the public health agencies, is rather large, and whose work likewise could be more efficiently carried out by some amalgamation. These agencies all meet together in a fortnightly advisory committee, which is a stride toward good standards for all.

To turn a moment to the city, our industries are many and diversified, and we have a large skilled labor market. We have, however, not the same problems that are met in the large manufacturing center. We are called a city of homes. Our foreign-born people are largely Italian and Polish, there being about 5,000 of each, with about half this number of Hebrews and a quarter this number of Greeks. The Canadian French, Armenians, Syrians, Chinese and others number in the hundreds.

I give this background in order that you may understand the shortcomings of the Visiting Nurse Association, and may see perhaps why it has progressed along some lines and has left others undeveloped.

In June, 1917, the Visiting Nurse Association began a reorganization. At that time we had four nurses who were covering the city and also caring for sick policy holders of the Metropolitan Life Insurance Company in the six adjoining towns. This meant that the city was divided into three districts, each nurse having a district, and the fourth nurse looking after the six towns, and spending the greater part of her time traveling. This of course was a most inadequate service, so our first efforts were made to place community nurses in the two largest towns, both of which could well support one or two full-time nurses. This was soon accomplished, and two nurses were placed in these communities, one of whom was to take occasional calls in a third community. This left us with three outlying communities, two of which could easily be cared for by the nurse in one district, due to the fact that these towns formed a small triangle adjoining her district. The third one being a residential section we seldom had a call there. Thus we found ourselves with our four nurses practically working in the city proper.

A step we took at about the same time was the taking over of the baby welfare work. This meant taking on our staff the two nurses then doing that work. Because we believed that more could be accomplished for baby welfare by teaching home modification of milk, we undertook a radical change in closing the milk station formerly run by the Baby Feeding Association, and concentrated our efforts on educating the mothers in home modification of milk.

Our four districts grew into six, and our program became one of generalization. Here arose the matter of the efficiency of the bedside nurse in baby welfare, and of the baby welfare nurse in bedside nursing. Each nurse must understand both branches of the work, and thus it meant a frequent getting together of the nurses for instruction in all phases of public health nursing, as well as for an increased broadening in social knowledge. Public health nursing has evolved so rapidly the last few years from straight bedside nursing to so many requirements along lines of preventive and educational nursing that to take a group of even six graduate nurses and give them the broad education we want them to have in order to best serve the public health interests of their community was a problem as big as any that confronted us during the beginning of our reorganization. Thus it was decided that staff nurses would be required to have a diploma from a course in public health nursing. Such a course, given in a large city (and the city in our own State, of course, is Boston), would equip the nurse with the broadest social vision and practical experience in a large city added to her experience in our smaller community. So our nurses were given leave of absence during the four months that they might take the public health nursing course at the Boston Instructive District Nursing Association, part going at one time and part at another; thus after the period of a year our staff had become public health trained. Substitute nurses who came during the absence of our own nurses also became interested enough to take the course, and owing to our rapid growth from six to eleven districts we were able to take these nurses on to our staff upon their return.

We feel to-day that after a year and a half of uphill work we have reached a place where we can catch our breath and stand and study our past work and carefully plan for the future. To-day the field of our work is bounded by the city lines, although connection in an advisory capacity is maintained with some of the nurses in near-by towns. In each nurse's district is a call station where she may receive calls or have use of the telephone. Five weekly well baby conferences have been established, so located as to serve every district conveniently. We give an industrial nursing service to certain of the firms in the way of visiting sick employees, and have one nurse who spends full time in one factory. In order to relieve our nurses of much of the bathing of chronic patients, an attendant, who is a volunteer, gives us most efficient service in this part of our work.

That our work may be kept alive and our nurses kept in close bonds of sympathy and co-operation, we have a weekly nurses' conference. To this conference every fourth week are invited the other public health nurses in the city.

Our statistical records regarding every item show a steady and rapid growth. The first month's report four years ago shows 200 visits, as against our past month of 2,900 visits. In 1918 we made a total of 30,335 calls.

In spite of the combined efforts of the public health workers the following table will show how much there is yet to be done for our community: — .

| *Reached.* | *Not reached.* |
|---|---|
| Prenatal nursing. | Pregnancy clinics. |
| Parturition care and baby under two years. | Nursing care during labor. |
| School children. | All births. |
| Tuberculosis; ophthalmia. | Child, two to six years. |
| Visiting nursing for some factories. | Other communicable diseases. |
| Bedside nursing. | Free dispensary. |
| Metropolitan Life Insurance Company nursing. | |
| Well baby clinics. | |

The "not reached" group will show in part for what the Visiting Nurse Association is working. It is our desire to get the gaps filled in before we have the sense of doing an efficient piece of public health nursing in the community.

## HOUSING INVESTIGATION.

By George C. Whipple, Professor of Sanitary Engineering, Harvard University.

### Statement to the Housing Board[1] of the Massachusetts State Department of Health.

IN beginning the investigation which the State Commissioner of Health has asked us to undertake, I wish to present to you an outline of the housing problem as it appears to me at this time, trusting that it may be of use to us, and perhaps to others, in considering this very important but very much tangled problem. For the sake of brevity I have condensed my ideas into a number of short paragraphs, and have given conclusions and opinions without attempting to support them by evidence. It will doubtless turn out that some of them will need modification. Certainly now is not a time for one to be dogmatic on this or any other subject.

---

[1] On July 8, 1918, Dr. Eugene R. Kelley, State Commissioner of Health, appointed a Housing Board consisting of the following members of the Department: Prof. George C. Whipple, Member of the Public Health Council, *chairman;* Mr. X. H. Goodnough, Chief Engineer and Director of the Division of Sanitary Engineering; Dr. John S. Hitchcock, Director, Division of Communicable Diseases; Dr. R. B. Sprague, District Health Officer; Dr. C. E. Simpson, District Health Officer; and Dr. John S. Hodgson, Recorder.

1. The primary function of a house for human habitation is shelter from the elements, and this necessarily involves provision for warmth, light and ventilation. For civilized human beings there is a second function scarcely less important than the first, — that of securing protection and privacy for families, and sufficient space for normal family life. These are the real necessities of habitation; all else should be regarded as subordinate to them.

2. The major conveniences, to-day regarded almost as necessities, are sleeping accommodations; running water, hot and cold, with accompanying fixtures for using it; facilities for storing, preparing, cooking and serving food; facilities for disposing of the wastes of the human body in a decent, safe and inoffensive manner; facilities for storing household refuse, — garbage, ashes, rubbish, while awaiting removal; space for the storage of household utensils, clothing and personal belongings.

3. The family, not the individual, is the natural unit of society. The ideal plan for human habitation should be regarded as a single house for each family. Civilization has long recognized this principle and it cannot be safely violated. The housing problem is but one part of a larger problem, — that of maintaining family life under conditions which will produce the best individual life and the best social life.

4. The birth rate fluctuates up and down in cycles. This means that families vary in size from period to period. In civilized countries there has been a downward trend of the birth rates for a long time, and in recent years they have been relatively low and falling. Small families have been partly a cause and partly the result of scanty housing space. There is a strong probability that in a period not far ahead the birth rates of America will increase, families will be larger, and more housing space will be needed. This may not be true of all classes of people, but it will be true of some classes.

5. There are three fundamental variables in houses — size, quality and cost — which are interrelated. For houses of given capacity the cost increases as the structures improve in quality; for houses of equal quality cost increases with size; for a given cost structures become inferior in quality as the houses become larger. The major emphasis is sometimes placed on quality, sometimes on size and sometimes on cost. Obviously people must differ on these matters.

6. Under the economic and social conditions existing in American cities just before the war it was impossible for the great body of

wage-earners, having families, to buy and maintain separate houses of a size sufficient for normal family life, of satisfactory quality, and for the wages which they received (assuming a reasonable proportion of wages to be devoted to shelter). Attempts to build houses of ample size have resulted in shoddy and shabby construction; attempts to build houses of good quality and provided with the major conveniences have resulted in too great reduction of size. The logical outcome of this situation was the multiple house, — the two-family house, the three decker, the tall apartment house, etc. Unless the economic conditions change radically in the future, or unless some plan is developed for government assistance in providing houses, the multiple house must continue to be the prevailing type for the great mass of wage earners in cities.

7. In the construction of multiple houses there is a greater tendency to compression, to the reduction of habitable space, than in single houses. Very small single houses attract attention, and are ridiculed under the nickname "race-suicide houses;" yet multiple houses which have the same habitable space per family are taken as a matter of course.

8. The objections to the compressed multiple house are not essentially hygienic or sanitary, but social. The major conveniences are usually provided; shelter, warmth, light and ventilation are likewise secured; the work of keeping house is easy. But family privacy, and opportunities for all the members of the family — babies, children, adults, the aged — to live a normal life are limited. Lack of space for activities at home leads people to seek activities and pleasures away from home. Life thus tends to become communistic. Communistic life tends to moral corruption; communism is one of the tenets of Bolshevism. These influences are slow and insidious, yet fatal to society.

9. A second objection to the multiple house is that it tends to reduce private ownership, to produce landlord and renting classes with antagonistic interests, and to encourage migratory habits, all of which tend to unstable society, and lessen civic responsibility. A third objection is that the misuse of the house by one family may influence the entire house. This misuse may even result in the communication of disease. A fourth objection, if the houses are of wood, is the fire hazard. A fifth objection characteristic of present conditions, but not necessarily attributive, is architectural ugliness, the psychological influence of which is real, though impossible to measure.

10. It is possible to construct multiple houses which are reasonably satisfactory as human habitations, — buildings of ample size, sufficiently far apart, with large enough rooms, of suitable construction

and of low fire risk, but such houses are not being built to any great extent to-day. For the reasons above mentioned, the building of multiple houses should be under public control throughout the State. Regulations as to location, height, bulk, occupancy of lots, size of rooms, and arrangement of stairs, windows, sanitary conveniences, etc., fall properly within the functions of the police power, which resides in the State government. Districting and regulation are also economically expedient, as they tend to stabilize real estate values. Efforts may well be made towards improving the multiple type of habitation. Well-regulated building, coupled with districting and good city planning, is of advantage to a city in many ways.

11. Because of the social objections, and for the other reasons mentioned, no attempt should be made by the government, — national, State or municipal — to encourage or foster multiple houses of the prevailing types. Governmental aims should be directed, rather, towards decentralization and the prevention of land congestion. It seems possible to greatly improve the multiple house as a habitation, and its size does not necessarily imply land congestion.

12. There are certain matters found in building and plumbing laws concerning which restrictions which are appropriate to multiple dwellings appear to be unnecessary in the case of single houses. It would be well to modify these regulations, starting with the idea that the restrictions for single houses should be reduced to a minimum, in order that the individual citizen capable of owning his own house may be as unhampered as possible in constructing it and living in it. As people live closer together they influence each other more, and wider applications of the police power are necessary; in proportion as people live apart the police power may be relaxed.

13. It would be well to consider the question whether houses offered for rent do not cease to be "private" houses. In rented houses the public is an interested party. This introduces a new factor. The requirement of a certificate of fitness for occupancy before renting and sub-renting is a solution worth considering.

14. The Massachusetts State Department of Health may properly undertake to determine what standards in regard to such matters as shelter, warmth, light, ventilation, height and bulk of buildings, size of rooms, water supply, plumbing, drainage, food storage, refuse disposal, etc., are necessary for houses for different classes and for different localities. It may properly consider, also, the health problems which arise from occupancy and especially from the misuse of multiple houses, and devise sanitary rules governing the renting and occupancy of houses.

15. The results of such a study would doubtless be productive of

good, but it must not be forgotten that such matters do not strike at the heart of the housing problem, which is fundamentally one of economics. From the premises stated above it appears to follow that if houses owned by the occupants are to increase, the owners must pay a larger proportion of their earnings for shelter. Their earnings must increase or the cost of shelter must decrease, unless these things occur in combination and a compromise solution is obtained. The cost of land, its valuation and method of taxation also come in as factors, and the problems of transportation are likewise involved.

16. The solution of these economic problems may proceed along two lines, which may be termed the individualistic and socialistic methods. If solved on the individualistic basis, wages (relative to housing costs) must increase, or, what is virtually the same thing, the cost of housing (relative to wages) must decrease. If solved on the socialistic basis, that is, through government agencies, taxation must increase, and in view of valuations already inflated this becomes a serious matter to all house owners. In either event it seems evident that in order that the wage earners of the cities shall be housed under better conditions than at present, a larger percentage of the earnings of capital must be distributed to the wage-earning labor class, either directly, in the form of wages, or indirectly, through government activities than was the case before the war. No amount of regulation by the passage of housing or building laws, or by the use of the police power, will solve the housing problem unless these great economic forces are adjusted. My personal inclination in these matters leans strongly towards individualism rather than toward socialism.

17. The watchword of the world for many years must be "economy." The war debts will rest heavily on the world. This means the elimination of waste and the abolition of things unnecessary. These economies must not interfere with human health; but a study of sanitary laws and practices has convinced me that in many places curtailments can be made without injury to health and with financial relief to householders and to the community. This is a most important field of investigation which should be entered by this Department.

18. Housing reform must also recognize the existence and persistence of what General Booth many years ago called the "submerged tenth." The feeble-minded, the ignorant and the intemperate, not low enough for institutional care, become economically impotent and drift to and help create slums. The conditions which they create cannot be corrected by public regulation or police power, however drastic. Nothing else than the personal activities of human brotherhood — those activities which fall within the scope of the misunderstood

words "charity" and "religion" — will suffice. Churches which leave this work undone and neglect to spread the propaganda of temperance and the self-control of human passions — no matter how much interest they may take in governmental measures controlling human actions — are neglecting their most powerful weapon, and are not doing their full part in helping to solve one of the momentous problems of the age, — that of the human home. For the relatively few in real need there must be a charity which springs from the sentiment of human brotherhood, but paternalistic measures for the many, whether they spring from church or government, will only prolong the evils which they pretend to correct.

19. Finally, there is the element of nationality to contend with. Foreigners, poor, ignorant of our language, laws and customs, coming to us with habits of their own, instinctively segregate; the unmarried board; early marriage results in large families. A few foreigners, acquiring the control of houses by rent or purchase with borrowed money, exploit newcomers of their own nationality, who are limited to them in housing relations because of their ignorance of our language. Congestion follows naturally after segregation. The problem of the city slum is largely the problem of the foreign immigrant.

20. In the face of this tangled web of social and economic forces which makes the housing of human beings a problem which has taxed the ages, it seems to me that the best use which the State Department of Health can make of its powers and opportunities is to confine its activities, for the present at least, to the scientific aspects of the problem; to study houses of each class with respect to the application of the natural laws of public health as far as they are known; to advance these laws by research; and to crystallize them into possible standards, in order that the Department may be in a position to advise the Legislature, as well as cities and towns, in the preparation of districting laws, housing laws, building laws, plumbing codes, and all that appertains to human habitations.

Such a study might well form a part of a wider investigation of the problem, which should include all of the factors mentioned, and which might appropriately be conducted by a special housing commission, appointed by the Governor, and composed of unpaid members, experts in their fields, and representative of the interests involved. There should be also an adequate appropriation for expenses and assistance, and authority to summon witnesses.

21. The work of our present Housing Board, it seems to me, should be that of analyzing more carefully than I have done in this statement the essential factors in the housing problem, and of laying out

a program of investigation in which all of the varied interests of the State may have a share. In a matter so complicated as the housing problem, speedy action cannot be expected. A five-year program would be none too long.

## A FEW SIMPLE FACTS ABOUT DIGESTION.

By Alzira Wentworth Sandwall, S.B., Health Instructor on Food, State Department of Health.

WHAT happens to food after it is eaten? It is taken into the body in many forms, in varying amounts and combinations, and often at irregular times, with little or no thought of its real function.

From long established habit food is served at three definite periods during the day. Many, however, thinking of it only as a means of gratifying their taste, or satisfying their hunger, eat at those times only the foods they like. And many, not because they are really hungry, but because the food appeals to them, nibble at sweets whenever else they like. Then they forget all about the matter, unless their bodies rebel at some indiscretion on their part and compel their attention by treating them to a case of indigestion. If one continues in this heedless fashion serious results may follow, unless, of course, he is one of those favored few who are blessed with an unusually strong constitution (or has unwittingly chosen wisely and well.)

The function of food is to form new tissues, repair waste, supply heat, and give the body the power to do work. And just as it is definitely divided into different groups, each having its own special duty to perform, so, also, is special provision made in the body to take care of this food and prepare it for its body function.

In considering this question we might think of the digestive system of the body as a delicately organized machine composed of four separate compartments, each of which has a highly trained body of servants, called enzymes, to transform the food material sent to them into substances that can be utilized by the body. This changing process is called digestion. And, while the work performed by the body varies according to the will of its owner, the way it is done is greatly influenced by the manner in which the machine is provided with food.

The owner has no power in the selection of his servants, the enzymes. They are a part of the machine, and for the most part he has no control over their movements. But he can and should obtain complete information regarding their treatment, and find out what he can do to make it possible for them to give him their best service. These servants are specialists; they can do only certain kinds of work, and do well only certain amounts. They should have definite hours of work and rest, and should not be asked to work overtime, nor during rest periods. Neither should they be asked to undertake tasks unfitted for them. If such precautions are not heeded they will refuse to work altogether, or will perform their duties in a very inefficient manner.

Although the owner of this delicate machine, the body, does not select his servants, he does select the material with which they are to work, and also has a certain amount of control over the work done in the first compartment, the mouth. A great deal depends upon the manner in which he uses this power. He can see that proper food, correctly prepared, is taken into the mouth only at regular periods, and that this food is thoroughly masticated and mixed with saliva. The saliva contains the first servant, the enzyme Ptyalin. His one duty is to change the complex carbohydrates, the starches, into the double sugar, maltose, and if the food is carelessly masticated and hastily swallowed he does not have time for his task. The mastication also breaks up the food so that the other servants can do their work with less difficulty, more thoroughly and more efficiently.

As soon as the food is swallowed it passes into the second compartment, the stomach. The Gastric Juice with his four little servants, Pepsin, Hydrochloric Acid, Rennin and Gastric Lipase, is ready to receive it. If there is any milk present the enzyme, Rennin, appears and changes the protein in it into a soft curd, then disappears, and leaves it to be taken care of with the other proteins. Hydrochloric acid destroys any bacteria present, softens the cellulose, dissolves the connective tissues and helps the pepsin in its work of changing proteins into proteoses, and sometimes even into peptones.

Gastric Lipase has for his particular duty the transformation of fats, but since he is a little fellow and his strength is not sufficient to digest all of the fats, he takes charge of the liquid or emulsified fats only, and changes these to fatty acids and glycerine.

The stomach has no servant for the starches, but if the food has been thoroughly mixed with saliva, faithful Ptyalin continues his work as long as he can, until finally, when the food is permeated throughout with Hydrochloric Acid, he succumbs, for he cannot live in an acid medium.

After leaving the stomach the foods pass into the small intestines. A signal of their approach has been sent on before, and Intestinal Juice has hurried forth her lively little messenger, Secretin, to call together the intestinal workers. He rushes, by means of the blood stream, to the sleepy Pancreas and to the Liver, and bids them send their servants at once to help the small intestines with their task. The call is quickly heeded. From the Pancreas flows pancreatic juice carrying Trypsin, Amulopsin and Lipase, while the Liver pours out bile fluid with Bile Salts, Bile Acid and Bile Mucus. Meanwhile Intestinal Juice, known also as Succus Entericus, is assembling her servants. They come quickly, the pompous Enterokinase with the gentle triplets, Maltose, Lactose and Invertin, and almost at once the work begins. The small intestines are a busy place. The little men fly about their tasks never stopping until each has done his best. Enterokinase, who feels his importance because he knows Trypsin is useless without his help, joins the latter, and together they seek out those proteins that have wholly escaped digestion, and the partly digested proteins, or the proteoses, and change them all into soluble peptones and amino acids. Amylopsin looks after any of the compound carbohydrates, the starches, that Ptyalin has been unable to reach, and changes them into the double sugars, which are then taken in hand, together with all the other double sugars, by Maltose, Lactose and Invertin, and divided into the simple sugars that can be used in the body. At the same time, Lipase, Bile Acids and Bile Salts are busy with the fats. Up to this point, with the exception of the work performed by feeble Gastric Lipase in the stomach, little has been done for the fats except to separate them as far as possible from the other food. The fat servants now make them all into glycerine, fatty acids and soft soaps. Bile mucus does not help in digesting the food, but acts as a lubricant to the lining of the small and large intestines, and so aids in the passage of food along that tract.

If, throughout the whole machine, the little body servants are strong and active, and each compartment is in good condition, by the time the work in the small intestines is finished the starches and sugars will be changed to simple sugars, the proteins to peptones and amino acids, and the fats to soaps and glycerine. And when they are in this form they will be sucked up by the walls of the small intestines, and carried by the blood stream to the different parts of the body.

Any remaining food is sent on to the large intestines, where any useful food material that has escaped absorption in the small intestines, together with most of the water, is absorbed. The rest is thrown out of the body as waste.

Now unless the food taken into the body is thoroughly digested and well absorbed, the body will be cheated out of the material needed for its development. And if you find you are poorly nourished, even though consuming adequate quantities of food, or if your digestive system is crying out in distress, ask yourself the following questions to see if, through some carelessness or neglect on your part, you are giving your body servants an unfair chance.

1. Is the food well cooked and attractively served? If so, it will tempt the appetite and stimulate the flow of the digestive juices. Good cooking has been well called the first stage of digestion.

2. Do I masticate my food thoroughly, and so aid digestion by mixing it well with the saliva, and by breaking it up into forms easily reached by the other digestive juices. Thorough chewing also helps to overcome the tendency to overeat, and so prevents a multitude of evils, such as headache, indigestion, irritability, too great an accumulation of fatty tissue, etc.

3. Do I eat at regular hours, and avoid nibbling between meals, and so give my digestive organs a chance to rest? Lack of appetite and refusal of nourishing foods at meal time can often be traced to the pernicious habit of nibbling between meals.

4. Am I careful to eat very lightly when overtired, worried, angry or greatly depressed? The digestive organs are very sympathetic, and digestion is retarded at such times. Laughter and good spirits are great aids to digestion.

5. Am I careful about food combinations? Too large amounts of fats or too highly seasoned foods retard the digestion. Too much sugar is an irritant. Too large amounts of concentrated foods are constipating, while too many acids and coarse foods have the opposite effect.

6. Do I take enough out-of-door exercise? Fresh air is a great stimulant to good digestion.

These are a few of the necessary precautions, but there are many others. A man who is not well fed or who is troubled by any form of indigestion cannot give to the world his best service.

And since, as the old saying goes, it is hard to teach an old dog new tricks, and bad eating habits are difficult to break, great care should be taken to help the child form good food habits, and also to give him a thorough knowledge of food and its function in the body. This is of great importance, for the health of the adult greatly depends upon the diet of the child.

*Simple Digestive Chart.*

| Kind of Food. | Use in Body. | Where digested. | Digestive Enzymes. | Digestive Juices. | Result of Digestion. | Where absorbed. | Waste Products. | Where excreted. |
|---|---|---|---|---|---|---|---|---|
| Protein, . . | To promote growth; to repair waste; can be used as source of heat and energy. | 1. Digestion started in stomach. | By pepsin; hydrochloric acid; rennin (acts only on milk). | In gastric juice. | Proteosis; peptones. | Very slightly from walls of stomach. | Uric acid; also urates, sulphuric acid, sulphates, sodium phosphate, Xanthin bodies, conjugated sulphurates; urea. | Kidneys. |
| | | 2. Finished in small intestines. | By trypsin; enterokinase. | In pancreatic juice; in succus entericus. | Peptones; amino acids. | From wall of small intestines. | | |
| Carbohydrates: —<br>(*a*) Starches, . | To supply heat and energy. | 1. Digestion started in mouth. | By ptyalin. | In saliva. | Maltose (a double sugar). | – – | – – | – – |
| | | 2. Finished in small intestines. | By maltase. | In succus entericus. | Simple sugars. | From wall of small intestines. | Carbon dioxide gas; water. | Lungs; skin. |
| (*b*) Sugars, . . | To supply heat and energy. | Small intestines. | By lactase; invertase. | In succus entericus. | Simple sugars. | From walls of small intestines. | Carbon dioxide gas; water. | Lungs; skin. |
| Fats, . . . | To supply heat and energy. | 1. Stomach (very slightly). | By gastric lipase. | In gastric juice. | – – | Very slightly from walls of stomach. | Carbon dioxide gas; water. | Lungs; skin. |
| | | 2. Small intestines. | By lipase; bile acids; bile salts. | In pancreatic juice; in bile fluid. | Fatty acids; glycerine; soaps. | From walls of small intestines. | Carbon dioxide gas; water. | Lungs; skin. |
| Minerals, . . | To keep body in good condition; to build bone and teeth; needed in every tissue and fluid in body. | – – | – – | – – | – – | From walls of stomach and small intestines, and of large intestines. | – – | If not absorbed, is carried off with waste from kidneys and large intestines. |
| Residue: —<br>Undigested foods; unabsorbed fats; cellulose; mucus; amino acids; bile salts; bile pigments. | Served as intestinal ballast or stimulant and so aid digestion. | – – | – – | – – | – – | – – | – – | From large intestines. |

# THE MILK FAIRIES.[1]

By Jennie Van Heyson McCrillis.

JOHNNIE had not been very well for some time. He was not really sick, but he just did not seem to be as well and strong as some of the other children. Sometimes he was so cross and fretful his mother did not know just what to do with him. Everybody was kind to the little boy, and mother tried so hard to prepare good things for him to eat. The great big "Doctor Man" who lived next door told him to drink lots of milk, at least a quart every day, but when mother said, "Come, Johnnie, drink this nice glass of milk," Johnnie answered, "I'm tired of milk. I want some tea or coffee or an ice-cream soda." Sometimes he was very naughty and would not eat his oatmeal and milk for breakfast, or bread and milk for supper.

One day he had been very naughty, and poor mother looked so grieved. He said he did not want his breakfast; the cat could have the oatmeal and milk for all he cared. It was a warm day, and mother told him to go out of doors and play. But there did not seem to be any one to play with, so he finally lay down on the grass under a big tree.

And then — the strangest thing happened! The big tree suddenly became a great big milk bottle! It looked just like the bottles the milkman left every morning, and it was marked — 1 quart of pasteurized milk. Johnnie knew what that big word meant, for mother had explained to him that pasteurized milk was best for children who live in the city to drink, but he surely was surprised to see that milk bottle there. Then, what do you suppose happened? Johnnie heard a bugle blow; a door opened, and out of that milk bottle came just lots and lots of tiny white elves and fairies! Johnnie tried to count them; there were six rows, with a hundred in each row, and then another row of fifty. Think of that — six hundred and fifty fairies came out of that bottle. They began to march and dance and sing, and then they formed a word. Johnnie looked closely, why — it was the word he could not spell in school the other day, and teacher made him write it a hundred times. C–A–L–O–R–I–E–S, calories, but what did the fairies have to do with calories? Johnnie heard them sing, and he listened carefully: —

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[1] This story, illustrated by slides, is being told to the Cambridge school children by Mrs. McCrillis in connection with her work as Emergency Home Demonstration Agent of the United States Federal Bureau.

Oh, we are the fairy calories,
In a bottle of milk we live;
We make children well and strong,
And rosy cheeks we give.

Well, thought Johnnie, if I had known that calories were fairies I guess I'd have learned the word sooner. He watched the fairies closely, and suddenly they separated into groups. One hundred and ninety-five of them ran over to the milk bottle; a door opened, and out stepped the dearest little girl fairy. The others danced around her, and they all came over to Johnnie. He thought she was the dearest, sweetest, prettiest little girl he had ever seen. She made him a pretty little bow and said, "Hello, little boy, who are you? And what are you doing in Fairy Milk Land?" He said, "My name is Johnnie, and I live over in that house." Then she laughed, such a happy laugh, and said, "My name is Sugar, and I live in the milk bottle. You thought I lived only in the sugar bowl and in the candy store down at the corner, didn't you? Well, I'm in every glass of milk you drink, and that is why it is so nice and sweet. And I help to keep you warm too. Some members of my family live in cake and candy, and if you eat too much of that kind of food you will be sick, but the milk you drink will keep you well." She laughed, clapped her hands to call her fairies, and off they danced down the field.

But they had no sooner gone than Johnnie saw 347 of the other fairies run over to the milk bottle. Up near the top of the bottle a door flew open and out stepped a dear little fat fairy. She and the others danced up to Johnnie. "Hello, Johnnie," said the fairy, "my name is Fat." Johnnie laughed. He had guessed her name. "Oh," said she, "I've got another name; it's Cream, and when I am frozen you call me Ice Cream. I live in the top of the milk bottle. Folks usually shake the bottle before they pour out the milk so that I won't be all in one glass, but if they let the milk stand awhile I climb right up on top again. I'm rich, and when I live in the milk people say, 'What nice rich milk that is.' I keep children healthy, and make them grow, and help to keep them warm." She called her fairies and off they danced.

Johnnie wondered if that milk bottle held any one else. He heard the bugle blow again, saw the rest of the fairies run over to the milk bottle, and then a big strong boy fairy stepped out. He was dressed in a uniform and looked like a captain. He formed his calories into line, and they marched over to Johnnie. He saluted and said, "My name is Protein." Johnnie had never heard that name before, so the fairy said, "It is spelled P-R-O-T-E-I-N, and it means muscle builder." He rolled up his sleeves and showed Johnnie what a lot of muscle he had. Then he picked up some of the calories and held them out, and said, "See how strong I am. See what a load I can lift. I live in the milk bottle, and when boys and girls drink lots of milk I build muscle for them. Then they grow into strong men and women and are able to do their part in the work of the world." Johnnie wanted to talk to him longer, but he called his calories, and they ran down the field playing leapfrog, and jumping and running just as all strong boys do.

Again Johnnie watched that milk bottle, and once more the bugle blew. Another fairy boy in a soldier's suit came out. He was tall and straight, and carried his head and shoulders well. When he smiled he showed his teeth, and they were white and strong. He came to Johnnie and said, "Hello, John, my name is Mineral Matter. I live in the milk bottle, and if you drink enough milk I'll make your bones and teeth strong, and you will be able to stand up as straight as I do. Of course you have to keep your teeth clean, or they will not stay white very long." Off he went to join the others, and then Johnnie heard a gurgle of laughter. It sounded just like a brook running over the rocks in the springtime. Out danced a fairy girl in a bright shining dress. It sparkled and shone just as the dewdrops do when the sun shines on them. "I'm water," she said to Johnnie. "I live in the milk bottle, and that is why you can drink milk. You must drink it very, very slowly, so as not to drown the fairies." Then she too ran off.

Johnnie thought all of the fairies must be out of the bottle by that time, but he saw two little faces peeping out as though they were trying to play hide-and-seek. "You can't guess our name," said one of them when she saw Johnnie had spied her. Johnnie guessed every name he knew of, but the fairies kept saying, "No, that isn't it." Finally they had to tell him. "We are the Vitamine twins," said they; "one of us lives with water and the other with milk, and we are the most important fairies in the bottle, for we make you grow." Then they ran off to join the others.

Johnnie watched the fairy calories as they worked and played. The protein calories were chopping and gathering wood, while the sugar and fat calories were building fires. They were singing and shouting and having such a good time. They worked together like one big family, and as they worked they sang: —

We make little folks strong,
We keep little folks warm.
We make their cheeks so rosy and red,
Oh, milk is the best food on which to be fed.

Just then some of the fairies saw some flies coming; they ran over to the milk bottle to be sure that it was covered, for of course flies must never be allowed to get into the milk. They wanted to be very sure to keep all of the dust out too, because the good fairies can only live in a clean home. A bell rang and they all jumped back into the milk bottle, waving their hands to Johnnie as they went. Then Johnnie heard some one calling, "Johnnie, come, Johnnie, it is lunch time." He jumped up and ran into the house, and what do you think was the first thing he said. "Please, Mother, may I have a big glass of milk?" Of course mother gave it to him, and while he drank it he told her all about the Milk Fairies.

## WHAT AN INSTITUTION IS DOING FOR THE CONTROL OF VENEREAL DISEASE.

THE subdivision of venereal diseases presents the following account by Dr. Guy G. Fernald of the manner in which syphilis is handled in one of our State penal institutions, namely, at Concord Reformatory. It is the intention of this subdivision to present from time to time such evidence as this of the work being done in venereal disease control in the various institutions for the interest of the readers of "Commonhealth."

### Diagnosis and Treatment of Syphilis.

In 1910 our first experimental Wassermanns were done gratis at the Massachusetts General Hospital. In the fall of 1910 Dr. Simon Flexner apparently satisfied himself that our suspected cases would be sufficiently well checked up and followed up, for he sent us on our request five doses for scientific purposes from the second lot of salvarsan, then known as "606," to reach this country from Professor Ehrlich's laboratory. On Jan. 21, 1911, the first doses were given intramuscularly in the reformatory hospital. Since then every case of syphilis has been treated with the combined mercurial and salvarsan treatment intensively. As the various steps of improved technique were published, they were introduced at the reformatory clinic, so that from the intramuscular administration we passed to the vein dissection, and then to venipuncture with a bent needle, then with our own improved straight needle held in forceps, a description of which was published in the "Boston Medical and Surgical Journal," Vol. CLXXVI, No. 5, page 173, Feb. 1, 1917.

A straight needle permits the polishing of the lumen with the obturator in the process of flushing with distilled water from a wash-bottle, then with alcohol, and with distilled water again immediately after each venipuncture.

No severe reaction, much less any fatalities, has occurred. This happy outcome for the hundreds of cases treated is to be attributed, in our opinion, to the care that has been taken to secure not only asepsis, but to exclude glass and all other foreign matter from our solution for intravenous injection.

On the basis of the teaching that arsphenamine is nearly all eliminated from the blood by the bowel in the first twenty-four hours, and that hardly a trace remains after forty-eight hours, we have given a laxative, usually licorice powder, as a routine soon after the administration of arsphenamine. This avoidance of the possibility of resorption, and the uniformly observed precaution of administering arsphenamine only when the stomach is empty, may have contributed to the avoidance of some unpleasant reactions.

Fortunately, we very early procured the best still on the market and one of large capacity, and have never used water for solutions other than that hot from the condenser. We have never failed to filter the neutralized solution, nor to douche out with fresh distilled water the outlet tube of the solution reservoir, and all other tubes after sterilizing and before using, lest any insoluble particle or invisible greasy foreign matter had been swept in from the sterilizer tank contents. A Wassermann reaction is obtained from the State Department of Health, Wassermann Laboratory, on every arrival at the reformatory. This routine practice began in April of the year 1916, that in which the State began doing the Wassermanns gratis for public institutions. Previous to that time the institution paid $2 each for Wassermanns on suspected cases, and all clinically diagnosed cases throughout the years between 1911 and April, 1916. One year the reformatory bore the expense of over $400 for Wassermanns alone. The incidence of syphillis was reported last year as 14 per cent. of arrivals. Roughly, about half our cases are not cured, but we seldom encounter a primary case. Most victims are surprised when told of a positive reaction, but making the necessary effort can usually locate the occasion of possible infection.

The law requiring the isolation of cases in a communicable state has been steadily complied with, and further, such cases are invariably isolated in our special isolation ward. Treatment has occasionally been refused here, or blood specimens have been refused, but a humane method has been found to induce compliance with the medical requirements in every case. Several instances are known to us of court cases who have endeavored, through lawyer, court or probation officer, to receive admission or readmission to our clinic.

## GONORRHŒA.

As a part of our routine physical examination is the urinary examination, macroscopic and microscopic as well as a palpation, and, if necessary, a urethroscopic examination or microscopic and bacteriological examination of the urethra exudates. We do not overlook cases. We do not expect to cure a case in less than sixty days, though we may occasionally do so. So many of our cases are chronic, however, that the majority require months of treatment and observation. We irrigate the anterior, and, when indicated, the posterior, urethra twice a week with 1 to 7000 permanganate solution or 1 to 6000 silver nitrate solution as a routine, but in addition treat stricture or infected foci as indicated.

Our gonorrhœa list has contained 60 names at a time when the population numbered about 700. The reason this list was so large is not so much the prevalence of the disease (though its prevalence is, of course, high) as our difficulty in promptly curing chronic cases, generally thought by the patient to have been cured. Co-extensive with this treatment is the administration of the oils of copaiba and santal, alternating these at suitable intervals, and the prescription of the copious drinking of water. We note that cases following directions in this prescription show a favorable reaction much more quickly and certainly than do those neglecting it.

Appropriate literature is supplied, both printed for distribution and typewritten for loaning to individuals. The subjects treated by our separates are syphilis, gonorrhœa, sex hygiene, body hygiene, mental hygiene, intoxicants, health information, etc.

The preparation of this literature dates back some years for most of it. Some separates have gone through three or four editions and as many revisions.

# THE COMMONHEALTH.

MONTHLY BULLETIN OF THE MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

*Sent Free to any Citizen of the State.*

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
Room 546, State House, Boston, Mass.

*Public Health.* — That interest in public health is on the increase is evidenced by the fact that since September, 1918, twelve new public health nurses have been appointed over the State. During February and March, 1919, about $20,000 was appropriated in town meetings for the provision of thirteen nurses.

Citizens at the town meetings have voted for this money, upon having the economic aspects and the material benefits of expertly administered public health matters laid before them by the untiring efforts of the district health officers and the nurse field worker.

It is gradually becoming common knowledge that public health nursing service exists for the common good or the common health.

*Honors for Professor Gunn.* — Reports from France announce that Prof. Selskar Gunn has been made a Chevalier of the Legion of Honor of France in recognition of his work in that country with the Red Cross and the International Health Commission. Professor Gunn, since he has been abroad, has been engaged in the endeavor to introduce American methods along the lines of anti-tuberculosis work and the prevention of infant mortality.

The news of the honors conferred upon Professor Gunn is particularly gratifying to the Massachusetts State Department of Health, as Professor Gunn was our first Director of the Division of Hygiene, and as such, by his untiring energy, he gave a great impetus to child welfare activities in this State.

*New Subdivision Created.* — The Department announces the creation within the Division of Hygiene of a subdivision of public health nursing. Included in this subdivision will be the Nurse Health Instructors of the Division of Hygiene. Miss Blanche Wildes, who has been connected with the Department since July 1, 1917, has been appointed chief of the new subdivision.

*Modern Health Crusaders.* — The more deeply one gets into health work the more clearly one realizes that the great gains we hope for must come through educational effort directed towards the child. Adults have the habit of approving ideas without in any way feeling under obligation to put them into practice. The gambler spirit pervades most of us; the other fellow is likely to get sick if he persists in unhealthful practices, but we ourselves — oh, well, we are tough and have not been injured yet.

Children, on the other hand, accept things at their face value and put them into practice. There is no reason why the rules of health should not be so ingrained in the child that he will avoid unhealthful practices as instinctively as he raises his arm to protect himself from a threatened injury. The only things we can be sure of — to be bromidic — are the things which have become habits.

From this point of view the modern health crusader idea, as sponsored by the National Tuberculosis Association and the State Anti-Tuberculosis League, is sound. Furthermore, there is enough of glamor about it in the way of ranks and titles to hold the attention and interest of the child. The chores to be performed are simple, but the same may be said of the fundamental principles of personal hygiene. And it may well be asserted that it is the appreciation of the principles of personal hygiene by the average individual of a community which offers our best hope for future progressive public health.

*The Value of the Industrial Nurse.* — Employers who wish information as to the value of the factory nurse may obtain full and reliable details from Mrs. Anna M. Staebler, at 3 Joy Street, Boston. Mrs. Staebler is secretary of the committee on health in industry of the Massachusetts Anti-Tuberculosis League, and lecturer on industrial nursing for the public health classes of Simmons College.

She has devoted years to the study of nursing needs and health advancement in industrial Massachusetts, and is in touch with the entire New England situation. She says that the demand for factory nurses has grown by leaps and bounds during the last five years; that 135 factories have proved the value of keeping a nurse in attendance; and that no instance is known of a factory discarding the system. Employers may acquire much to their advantage from her store of information and experience.

### *Get a Full-time Health Officer.*

Do you need a health officer, school medical inspector, laboratorian, or other public health worker?

Many well-trained sanitarians are returning to us from the Army Medical and Sanitary Corps.

Write your needs to the free Health Employment Bureau of the American Public Health Association, Boston, Mass.

State type of position and salary offered. No charge for service.

## IN MEMORIAM.

### DR. WILLIAM WRIGHT WALCOTT, STATE DISTRICT HEALTH OFFICER, CAPTAIN, UNITED STATES MEDICAL CORPS, 101ST ENGINEERS.

Died in France March 16, 1919.

Dr. Walcott entered public health work for the Commonwealth on July 10, 1907, when he was appointed one of the State Inspectors of Health under the State Board of Health. These officers were appointed as marking a new advance in health administration. When the State Board of Health was made a Department, and the State Inspectors of Health became District Health Officers, Dr. Walcott continued in this new position and was on leave of absence at the time of his death. He was born in Natick, Mass., took an engineering course at the Massachusetts Institute of Technology, and a medical course at Harvard, and after graduation was appointed to an interneship at the Massachusetts General Hospital. This training enabled him to do unusually effective research work in the effects of disinfection and in industrial diseases.

He was on the medical staff of the First Corps Cadets for several years, and went to France with the outfit when recruited to war strength in the 101st Engineers.

He saw service at Château-Thierry, Chemin des Dames, St. Mihiel and Verdun, being in the last-named sector six weeks at the signing of the armistice.

Last summer he was wounded by a piece of shell and gassed, spending a month in a hospital on account of his injuries. He was promoted from first lieutenant to captain. Having weathered the severest campaigns and writing home so recently, giving assurance of his health, the news of his death comes as a distinct shock. His ability, his dynamic energy and his personality were unusually marked, and the value of his services is well recognized. His passing on the altar of patriotism is a deeply felt loss to the Commonwealth.

## RECENT APPOINTMENTS.

Miss Bernice W. Billings, chief, subdivision of tuberculosis, has accepted a position as executive secretary of the Oneida County tuberculosis committee with headquarters at Utica, N. Y.

Miss Pansy V. Besom, since August, 1917, chief nurse, under the Massachusetts child conservation committee and the State Department of Health, became, on March 1, 1919, assistant to Miss Elizabeth Ross, director of the public health nursing service of the New England Division of the American Red Cross, with headquarters at 755 Boylston Street, Boston.

*Beverly.* — Miss Mary Van Zile, on March 10, 1919, resigned her position as supervising nurse, Beverly Public Health Dispensary, to become field director of the public health nursing service of the New England Division of the American Red Cross.

*Cambridge.* — Dr. Bradford H. Pierce, for a number of years health officer of the city of Cambridge, has been appointed superintendent of the new Plymouth County Tuberculosis Hospital at South Hanson. Dr. Pierce's long experience with municipal hospitals, as well as his appreciation of the administrative side of public health work, leads us to feel like congratulating the Plymouth County commissioners on their acquisition.

*Cohasset.* — Miss Agnes Weir, district nurse, has left Cohasset for a position in Westford.

*Quincy.* — Mr. Edward A. Bean of Wollaston, formerly alderman in Everett, has been appointed health commissioner of Quincy.

Mrs. Marie Ewing, supervising nurse in the Braintree Visiting Nursing Association, will, on April 1, do child welfare work for the Quincy board of health.

Miss Christine M. Shand and Miss Catherine F. Coleman of the Quincy Visiting Nursing Association have taken positions at the Fore River Hospital.

Miss Ruth Parnell of Quincy is now industrial nurse at the Victory Plant, Squantum.

*Milford.* — Miss Nora Rowell, recently attached to the Red Cross public health nursing service in Portsmouth, N. H., is organizing public health nursing in the towns of Milford, Mendon and Hopedale, with Milford as a center.

*Note.* — Our readers are urged to notify us of recent transfers or appointments in the field of public health, social service, recreational work, etc.

## REPORT UPON THE WORK OF THE BACTERIOLOGICAL LABORATORY FOR THE MONTHS OF JANUARY AND FEBRUARY, 1919.

The total number of examinations made was 4,117, divided as follows: diphtheria, 2,630, including 186 cultures for diagnosis, which proved positive, and 281 taken for release, which proved positive; tuberculosis, 602 examinations, of which 135 were positive; widal test for typhoid, 197 examinations, of which 60 were positive and 11 atypical; culture tests for typhoid bacilli, 43 examinations, with 10 positive; malaria, 4 examinations, with none positive; gonorrhœa, 439 examinations, with 48 positive; and 202 miscellaneous examinations.

## REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of January and February, 1919, samples were collected in 50 cities and towns.

There were 1,636 samples of milk examined, of which 424 were below the legal standard, 2 samples were skimmed milk below the legal standard, 29 samples were skimmed milk not properly labeled, and 95 samples contained added water.

There were 175 samples of food examined, of which 30 were adulterated. These consisted of 2 samples of fish which were decomposed; 4 samples of sausage which contained starch in excess of 2 per cent, and 1 sample of sausage which contained coloring matter; 1 sample of olive oil which contained cottonseed oil; 3 samples of scallops which contained added water; and 19 samples of eggs which were either decomposed, stale eggs sold as fresh eggs, or were cold-storage eggs not marked. There were also 4 pathological specimens examined in the laboratory.

There were 40 samples of drugs examined, of which 19 were adulterated; these consisted of 3 samples of camphorated oil deficient in the active ingredient, and 16 samples of citrate of magnesia solution which did not conform to the U. S. P. requirements.

The police department submitted 30 samples of liquor for examination, 22 of which were above 1 per cent in alcohol. The police departments also submitted 24 samples of poisons for examination; of these, 7 were morphine, 3 morphine sulphate, 1 cocaine derivative, 2 cocaine, and 11 were examined for poisons with negative results.

There were 41 convictions for violations of the laws, $1,225 in fines being imposed. William Arestethes and James P. Dlorlona of Stoughton, Joseph Bernardo and Joseph Oliver of South Dartmouth, Manuel J. Dias, Mariano C. Leite, Manuel Rogers and John E. Silva of North Dartmouth, Antone Jerome, Louis Marshall Santos, Manuel Santos and Frank Vieria of New Bedford, Antonio Pavao of Dartmouth, William J. Bond of Cambridge, Max Traister of Newburyport, Hyman Pearlstein of Rockville, Harry Barchelder of Danvers, and Carlo Cosmai of Worcester, on four counts, were all convicted for violation of the milk laws. Max Traister of Newburyport appealed his case. John Liberatore and Borst, Pierce Company, Inc., of Newburyport were both convicted for violation of the food law. Frye & Crawford Drug Company of Lowell was convicted for violation of the narcotic law. Louis A. Belisle of Andover was convicted for interfering with and obstructing an inspector in the performance of his official duty. Abraham Gunsenheiser of Boston, The Sesuit Fish Freezing Company of Dennis, Antonio Bettencourt, Nazif Hassan, Walter Jackson and Angelo Toursignant of Lowell, John E. Wease of Newburyport, Christ Ganakas, Vasilios Kalamaras, Paulina Kulesza, Moustaf Mousa and Stavros Papas of Peabody, Michael Reismaro of Stoneham, Moses Samuel of Winchester, and William Douvris and Walter E. Rawson of Woburn were convicted for violation of the cold-storage laws.

There were 22 confiscations made, consisting of 486½ pounds of decomposed chicken, 301 pounds of decomposed fowls, 80 pounds of decomposed roosters, 149 pounds of decomposed turkeys, 85 pounds of dried-out and 25 pounds of decomposed beef livers, 11 pounds of tainted beef, 6,400 pounds of decomposed mullet, 47¾ pounds of hog cholera pork, 19 pounds of tainted veal, 188 pounds of decomposed veal legs, 15,600 pounds of decomposed shrimp, 1,920 pounds of decomposed smelts, 2,200 pounds of dried-out bait squid, 83,454 pounds of decomposed condensed milk and 60 pounds of bones.

In accordance with the Acts of 1910, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Three samples of watered milk, produced by Carlo Cosmai of Worcester; 10 samples of watered milk, produced by Antone Piper of South Dartmouth; 5 samples of watered milk, produced by Antone Jerome of New Bedford; 5 samples of watered milk, produced by Louis Marshall Santos; 5 samples of watered milk, produced by

Manuel Santos; and 21 samples of watered milk, produced by Frank Veria, all of New Bedford; 5 samples of watered milk, produced by John Veira of Mattapoisett; 2 samples of watered milk, produced by John Grace of Acushnet; 2 samples of watered milk, produced by Joseph Stanley of Acushnet; sausage, which contained coloring matter, manufactured by Rood & Woodbury of Springfield; sausage, which contained starch in excess of 2 per cent, 2 samples of which were manufactured by Brigg's Market of Methuen, 1 by H. Seed, and 1 by Albert Parker, both of Lawrence.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of December, 1918: 432,240 dozens of case eggs; 182,187 pounds of broken-out eggs; 1,841,415 pounds of butter; 5,790,317 pounds of poultry; 24,176 pounds of game; 10,714,853 pounds of fresh meat and fresh meat products; and 1,547,725 pounds of fresh food fish.

There were on hand on Jan. 1, 1919, 3,767,100 dozens of case eggs, 268,481 pounds of broken-out eggs, and 8,638,836 pounds of butter.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of January, 1919: 239,935 dozens of case eggs; 355,507 pounds of broken-out eggs; 1,600,148 pounds of butter; 2,357,408 pounds of poultry; 18,557 pounds of game; 19,899,651 pounds of fresh meat and fresh meat products; and 1,664,582 pounds of fresh food fish.

There were on hand Feb. 1, 1919, 656,586 dozens of case eggs, 246,785 pounds of broken-out eggs, and 5,382,063 pounds of butter.

## QUARTERLY REPORT ON SLAUGHTERING.

A compliation of the quarterly reports on slaughtering for the quarter ending Jan. 1, 1919, shows that during that period 64,236 animals were inspected by the local inspectors of slaughtering throughout the State. Of that number, 11,461 were cattle, 16,694 were calves, 34,524 were hogs, 1,573 were sheep and 4 were goats. In addition to a number of parts, which were condemned where it was not necessary to condemn the entire carcass, 561 animals were condemned. Of this number, 191 were cattle, 251 were calves, 116 were hogs and 3 were sheep. There were 217 calves condemned on account of immaturity; 217 animals on account of tuberculosis, of which 177 were cattle, 5 were calves and 35 were hogs; 60 hogs on account of hog cholera; 13 calves on account of weak condition; 5 animals on account of indigestion, of which 1 was a cow and 4 were hogs; 5 animals on account of abscesses, of which 1 was a cow, 1 was a calf, 2 were hogs and 1 was a sheep. The remaining 44 animals were condemned on account of actinomycosis, pneumonia, enteritis, peritonitis, cirrhosis of liver, icterus, diarrhea, carcinoma, septicemia, pyemia, erysipelas, dropsy, stillbirth, emaciation, sexual odor, poisoning, bruises, injuries, because the inspector was not present at the time of slaughter, and because the animals died otherwise than by slaughter.

These figures, as compared with the figures for the same period in 1917, show an increase in the total number of carcasses inspected amounting to about 7,500. The cattle show an increase of about 1,400; the calves are about the same; the hogs show an increase of about 5,200; and the sheep show an increase of about 750. The percentage of condemnations of carcasses is lower this year, there being but .9 per cent condemned, while last year there was 1.1 per cent condemned.

## RÉSUMÉ OF COMMUNICABLE DISEASES.

### January, 1919.

### *General Prevalence.*

For the month of January there were 34,426 cases of communicable diseases reported. Excluding influenza and the venereal diseases, there were 4,802 cases reported as compared with 9,376 for January, 1918. The total case rate per 100,000 population was 862.3, as compared with 120.3 [when influenza and the venereal diseases were excluded.]

*Diphtheria* for the month of January showed a decrease in the number of reported cases as compared with the same month of the preceding year, there being 738 cases reported in 1919, with a case rate per 100,000 of 18.4, as compared with 950 cases reported in the corresponding month of 1918, with a case rate of 24.2.

*Scarlet fever* also showed a decrease for this month; there were 565 cases reported in January, 1919, with a case rate of 14.1, while in January, 1918, 609 cases were reported, with a case rate of 15.6.

The cases, with the exception of those occurring in Gloucester, were scattered throughout the State. No place showed sufficient incidence to become alarming.

*Typhoid Fever.* — The total number of cases of typhoid for this month was 57, as compared with 54 for January, 1918.

A mild outbreak occurred at Lawrence this month, giving a total of 12 cases. It is apparent that the outbreak is not over and more cases are expected.

*Whooping cough* showed a marked reduction in the number of reported cases; 404 cases were reported this month as compared with 869 for January, 1918.

*Measles* showed an increase in the number of reported cases, there being 508 for this month as compared with 452 for January, 1918.

*Venereal Diseases.* — The reported cases of gonorrhœa and syphilis continue to average about 690 for gonorrhœa and 290 for syphilis, as has been the case for the past six months. While approximately 900 cases of venereal diseases reported each month seems to be quite an achievement, it does not by any means reflect the true situation as it exists in this State. It is fair to assume that not over one-third of the cases are being reported.

*Influenza* continued to be fairly prevalent during this month, 28,725 cases being reported. The number of cases for December was 42,018. The character of the infection changed and became less virulent, few deaths or pneumonia complications being noted.

### *Outbreaks.*

Scarlet fever in Gloucester assumed outbreak proportions early in the month. Investigation showed that unrecognized cases were responsible for the outbreak. Scarlet fever has been present more or less since September, 1918. Investigation showed that during this month 5 unreported cases of scarlet fever existed, and that during convalescence the members of the family continued to go to school, work and entertainments without hindrance. The results were only what might have been expected, and it is indeed fortunate that there were no deaths because of this outbreak. It appears that the special work that the local board has instituted will shortly bear results and bring the outbreak to an end.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Athol, 1; Boston, 1; Gloucester, 1; Springfield, 1; total, 4.

*Dogbite requiring antirabic treatment* was reported from Cambridge, 1; Lawrence, 1; total, 2.

*Dysentery* was reported from New Bedford, 1; Topsfield, 1; total, 2.

*Epidemic cerebrospinal meningitis* was reported from Boston, 4; Cambridge, 1; Camp Devens, 1; Fall River, 1; Fitchburg, 1; Haverhill, 1; Holyoke, 1; Ipswich, 1; Lancaster, 1; Lawrence, 1; Lowell, 1; Lynn, 1; Manchester, 1; Medford, 1; Pittsfield, 1; Salem, 1; Southbridge, 1; Springfield, 1; Waltham, 1; Worcester, 2; total, 24.

*Pellagra* was reported from Boston, 1.

*Septic sore throat* was reported from Boston, 10; Brockton, 1; Holyoke, 1; Medford, 2; Lowell, 1; Newburyport, 1; Somerville, 2; Wellesley, 1; total, 19.

*Trachoma* was reported from Boston, 4.

## *Distribution.*

### *All Communicable Diseases.*

| | January, 1919. | January, 1918. |
|---|---|---|
| Total cases (all causes), . . . . . . . . | 34,426 | 9,376 |
| Case rate per 100,000 population, . . . . . | 862.3 | 239.5 |
| Excluding influenza and venereal diseases: — | | |
| Total cases, . . . . . . . . . | 4,802 | 9,376 |
| Case rate per 100,000 population, . . . . . | 120.3 | 239.5 |

### *Certain Prevalent Diseases.*

| | January, 1919. | January, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | Quincy, . . . . (6) 13<br>Salem, . . . . (3) 12<br>Webster, . . . . (1) 7<br>Westfield, . . . . (1) 20 |
| Total cases, . . . . . . | 738 | 950 | |
| Case rate per 100,000 population, . | 18.4 | 24.2 | |
| Measles: — | | | Fall River, . . . . (18) 73<br>Taunton, . . . . (0) 54<br>Rockport, . . . . (0) 16<br>Leominster, . . . (4) 151 |
| Total cases, . . . . . . | 508 | 2,950 | |
| Case rate per 100,000 population, . | 12.7 | 75.2 | |
| Mumps: — | | | Barre, . . . . . (0) 10 |
| Total cases, . . . . . . | 165 | 711 | |
| Case rate per 100,000 population, . | 4.1 | 18.1 | |
| Scarlet fever: — | | | Mansfield, . . . . (0) 5<br>Gloucester, . . . . (1) 23<br>Ipswich, . . . . (0) 7<br>Winthrop, . . . . (3) 7<br>Lowell, . . . . (11) 25<br>Holyoke, . . . . (11) 17<br>Westfield, . . . . (5) 17 |
| Total cases, . . . . . . | 565 | 609 | |
| Case rate per 100,000 population, . | 14.1 | 15.6 | |
| Typhoid fever: — | | | Lawrence, . . . . (10) 12 |
| Total cases, . . . . . . | 57 | 54 | |
| Case rate per 100,000 population, . | 1.4 | 1.4 | |
| Whooping cough: — | | | Orleans, . . . . (0) 6<br>Stoneham, . . . . (0) 20<br>Belmont, . . . . (0) 25 |
| Total cases, . . . . . . | 404 | 865 | |
| Case rate per 100,000 population, . | 12.6 | 22.1 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, . . . . . . | 637 | 649 | |
| Case rate per 100,000 population, . | 15.9 | 16.6 | |
| Tuberculosis, other forms: — | | | |
| Total cases, . . . . . . | 42 | 70 | |
| Case rate per 100,000 population, . | 1.07 | 1.8 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure.

## FEBRUARY, 1919.

### *General Prevalence.*

The total number of cases reported for the month of February was 11,737, giving a case rate per 100,000 population of 296.5. Excluding influenza and venereal diseases, 4,300 reports were received for the more common reportable diseases, the case rate being 106.1 as compared with 9,374 cases, with a case rate of 253.8, for the corresponding month of 1918.

*Diphtheria* with 679 cases was the most frequently reported disease. Practically the same rate was obtained as for the corresponding month of 1918. The rates were, respectively, 17 and 17.3.

While no one city showed any alarming incidence, several, from the continuous reports of cases, must have had many different foci of infection in the form of unknown carriers, and only by intensive work can this be remedied with a diminution in the number of cases.

*Scarlet fever* was reported in 561 cases, a case rate of 14.1 being shown.

The Gloucester outbreak has quieted down.

*Typhoid fever* showed an increase for the month, 73 cases being reported, 23 of which occurred in Lawrence, 4 in one family in Boston and 4 in one family in Rockport.

*Whooping cough* was reported in 363 cases, twice as many as in February, 1918, when 181 cases were reported.

*Influenza* fell off very rapidly, 6,435 cases being reported in February.

*Lobar pneumonia* likewise dropped from 1,095 cases in January to 655 in February.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Boston, 1; Dedham, 1; total, 2.

*Dysentery* was reported from Boston, 2.

*Epidemic cerebrospinal meningitis* was reported from Boston, 3; Braintree, 4; Brockton, 1; Camp Devens, 1; Fall River, 1; Hudson, 1; Lawrence, 2; Lee, 1; Lynn, 1; Malden, 1; New Bedford, 1; Newton, 1; Northborough, 1; Peabody, 1; Somerville, 1; Webster, 1; Whitman, 1; Worcester, 2; total, 25.

*Malaria* was reported from Mansfield, 1.

*Pellagra* was reported from Haverhill, 1.

*Septic sore throat* was reported from Arlington, 2; Boston, 8; Fall

River, 1; Haverhill, 2; Lynn, 1; Sharon, 1; Taunton, 1; Somerville, 6; total, 22.

*Trachoma* was reported from Boston, 2; Cambridge, 1; total, 3.

## *Distribution.*

### *All Communicable Diseases.*

| | February, 1919. | February, 1918. |
|---|---|---|
| Total cases (all causes), | 11,737 | – |
| Case rate per 100,000 population, | 296.5 | – |
| Excluding influenza and venereal diseases: — | | |
| Total cases, | 4,300 | 9,950 |
| Case rate per 100,000 population, | 106.1 | 253.8 |

### *Certain Prevalent Diseases.*

| | February, 1919. | February, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | Dedham, (1) 9<br>Danvers, (0) 8<br>Everett, (10) 17<br>Haverhill, (7) 17<br>Lynn, (13) 24<br>Salem, (4) 22<br>Somerville, (15) 41<br>Westfield, (1) 11 |
| Total cases, | 679 | 678 | |
| Case rate per 100,000 population, | 17 | 17.3 | |
| Measles: — | | | Fall River, (14) 119<br>Taunton, (3) 33<br>Leominster, (3) 108 |
| Total cases, | 452 | 3,471 | |
| Case rate per 100,000 population, | 11.3 | 88.5 | |
| Scarlet fever: — | | | Mansfield, (0) 8<br>Foxborough, (0) 7<br>Gloucester, (0) 28<br>Lowell, (7) 26<br>Holyoke, (13) 21<br>Westfield, (6) 10 |
| Total cases, | 561 | 597 | |
| Case rate per 100,000 population, | 14.1 | 15.5 | |
| Typhoid fever: — | | | Lawrence, (2) 20 |
| Total cases, | 73 | 45 | |
| Case rate per 100,000 population, | 1.8 | 1.2 | |
| Whooping cough: — | | | Orleans, (0) 10<br>Belmont, (0) 32<br>Lancaster, (0) 18 |
| Total cases, | 363 | 181 | |
| Case rate per 100,000 population, | 9.3 | 4.7 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, | 601 | 652 | |
| Case rate per 100,000 population, | 15 | 17.4 | |
| Tuberculosis, other forms: — | | | |
| Total cases, | 66 | 72 | |
| Case rate per 100,000 population, | 1.65 | 1.9 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure.

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1918. | 19A Chicken Pox. |  | 9 Diphtheria. |  | 61A Cerebrospinal Meningitis. |  | 19B German Measles. |  | 92 Lobar Pneumonia. |  | 6 Measles. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,920,988 | 141 | – | 532 | 34 | 19 | 14 | 8 | – | 616 | 536 | 179 | – |
| 2 | Cities over 200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Boston, | 793,471 | 21 | – | 130 | 6 | 7 | 7 | 1 | – | 108 | 57 | 22 | – |
| 4 | Cities, 150,000–200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Worcester, | 173,419 | 4 | – | 10 | 1 | – | 1 | – | – | 44 | 34 | 7 | – |
| 6 | Cities, 100,000–150,000. | *578,593* | *23* | – | *118* | *12* | – | – | *2* | – | *138* | *93* | *11* | – |
| 7 | Fall River, | 128,317 | 6 | – | 11 | – | – | – | 1 | – | 11 | 9 | 6 | – |
| 8 | New Bedford, | 117,855 | 2 | – | 15 | 2 | – | – | – | – | 19 | 22 | – | – |
| 9 | Springfield, | 111,983 | 3 | – | 16 | 6 | – | – | 1 | – | 96 | 51 | – | – |
| 10 | Cambridge, | 111,379 | 9 | – | 27 | 2 | – | – | – | – | 10 | 7 | 4 | – |
| 11 | Lowell, | 109,059 | 3 | – | 49 | 2 | – | – | – | – | 2 | 4 | 1 | – |
| 12 | Cities, 50,000–100,000. | *569,719* | *22* | – | *96* | *2* | *3* | *2* | *1* | – | *127* | *112* | *13* | – |
| 13 | Lynn, | 99,952 | 3 | – | 17 | – | 1 | 1 | – | – | 6 | 7 | 4 | – |
| 14 | Lawrence, | 93,060 | 1 | – | 4 | – | – | – | – | – | 11 | 11 | 1 | – |
| 15 | Somerville, | 93,026 | 1 | – | 46 | 1 | 1 | – | 1 | – | 2 | 4 | 3 | – |
| 16 | Brockton, | 65,746 | 8 | – | 6 | – | – | – | – | – | 5 | 11 | 1 | – |
| 17 | Holyoke, | 62,796 | – | – | 3 | 1 | – | 1 | – | – | 22 | 52 | – | – |
| 18 | Haverhill, | 52,873 | 9 | – | 6 | – | – | – | – | – | 70 | 16 | – | – |
| 19 | Malden, | 51,798 | – | – | 11 | – | 1 | – | – | – | 4 | 3 | – | – |
| 20 | Chelsea, | 50,468 | – | – | 3 | – | – | – | – | – | 7 | 8 | 4 | – |
| 21 | Cities and Towns, 25,000–50,000. | *487,764* | *18* | – | *66* | *2* | *5* | – | *2* | – | *28* | *59* | *16* | – |
| 22 | Quincy, | 45,827 | 1 | – | 6 | – | 1 | – | 1 | – | – | 2 | – | – |
| 23 | Newton, | 45,234 | 3 | – | 18 | – | – | – | – | – | 2 | 2 | 2 | – |
| 24 | Pittsfield, | 44,410 | 2 | – | 3 | – | 2 | – | – | – | 1 | 5 | 1 | – |
| 25 | Salem, | 41,082 | – | – | 5 | – | 1 | – | – | – | 12 | 3 | – | – |
| 26 | Fitchburg, | 40,830 | – | – | 16 | – | – | – | – | – | 7 | 5 | – | – |
| 27 | Everett, | 40,435 | 1 | – | 7 | – | – | – | – | – | – | 5 | 1 | – |
| 28 | Taunton, | 37,381 | – | – | 1 | – | – | – | – | – | 2 | 13 | 1 | – |
| 29 | Brookline, | 37,147 | 3 | – | – | – | – | – | 1 | – | 3 | 3 | – | – |
| 30 | Medford, | 35,230 | 4 | – | 3 | 1 | 1 | – | – | – | – | 5 | 2 | – |
| 31 | Chicopee, | 33,177 | 1 | – | 1 | 1 | – | – | – | – | – | 7 | – | – |
| 32 | Waltham, | 31,643 | – | – | 2 | – | – | – | – | – | – | 1 | 9 | – |
| 33 | Revere, | 29,643 | – | – | 2 | – | – | – | – | – | – | 7 | – | – |
| 34 | Beverly, | 25,725 | 3 | – | 2 | – | – | – | – | – | 1 | 1 | – | – |
| 35 | Cities and Towns, 10,000–25,000. | *575,996* | *18* | – | *82* | *8* | *1* | – | – | – | *49* | *75* | *15* | – |
| 36 | Gloucester, | 24,529 | – | – | 4 | – | – | – | – | – | – | 1 | – | – |
| 37 | Northampton, | 23,081 | – | – | 5 | 1 | – | – | – | – | 11 | 5 | – | – |
| 38 | North Adams, | 22,045 | 1 | – | – | – | – | – | – | – | 6 | 5 | – | – |
| 39 | Peabody, | 20,489 | 1 | – | 12 | 3 | – | – | – | – | 1 | 4 | 2 | – |
| 40 | Attleboro, | 19,933 | – | – | 1 | – | – | – | – | – | 1 | – | – | – |
| 41 | Westfield, | 19,929 | – | – | 1 | 1 | – | – | – | – | 4 | 2 | – | – |
| 42 | Watertown, | 18,851 | – | – | 1 | – | – | – | – | – | 1 | – | – | – |
| 43 | Framingham, | 17,728 | – | – | 1 | – | – | – | – | – | – | 1 | 1 | – |
| 44 | Leominster, | 17,688 | 3 | – | 4 | 1 | – | – | – | – | – | 4 | 8 | – |
| 45 | Melrose, | 17,627 | – | – | – | – | – | – | – | – | 4 | 1 | 1 | – |
| 46 | Gardner, | 17,451 | – | – | 6 | – | – | – | – | – | 4 | 5 | – | – |
| 47 | Arlington, | 17,264 | – | – | 4 | – | – | – | – | – | 1 | – | – | – |
| 48 | Woburn, | 17,116 | – | – | – | – | – | – | – | – | – | – | – | – |
| 49 | Marlborough, | 15,680 | – | – | 4 | – | – | – | – | – | 4 | 3 | – | – |
| 50 | Methuen, | 15,649 | – | – | – | – | – | – | – | – | – | 3 | – | – |
| 51 | Newburyport, | 15,542 | 7 | – | – | – | – | – | – | – | – | 1 | 1 | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the addition and correction, these deaths, while approximately correct, are not absolutely complete.

TO THE PUBLIC HEALTH,[1] NOVEMBER, 1918.

| 38A | | 38B | | 75A | | 19C | | 7 | | 28–29 | | 30–35 | | 1 | | 38C | | 37 | | 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Trachoma. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 71 | – | 31 | – | 5 | – | 203 | 2 | 287 | 4 | 525 | 398 | 45 | 64 | 49 | 9 | 771 | – | 365 | 25 | 218 | 23 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 21 | – | 16 | – | 3 | – | 12 | – | 75 | – | 192 | 81 | 23 | 19 | 1 | – | 340 | – | 129 | 5 | 31 | 2 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 5 | – | 1 | – | 1 | – | 3 | – | 19 | 1 | 20 | 21 | – | 6 | 1 | – | 37 | – | 27 | 4 | – | – | 5 |
| *20* | – | *4* | – | – | – | *8* | – | *17* | – | *108* | *60* | *8* | *9* | *12* | *1* | *57* | – | *19* | *4* | *89* | *8* | 6 |
| 3 | – | 2 | – | – | – | 1 | – | 4 | – | 27 | 17 | 3 | 1 | 10 | 1 | 18 | – | 4 | 2 | 20 | – | 7 |
| 6 | – | 1 | – | – | – | 2 | – | 3 | – | 27 | 16 | – | 2 | 1 | – | 7 | – | 1 | – | 1 | – | 8 |
| 8 | – | 1 | – | – | – | 3 | – | 1 | – | 9 | 7 | 2 | 2 | – | – | 14 | – | 5 | – | 23 | 6 | 9 |
| 2 | – | – | – | – | – | 2 | – | – | – | 18 | 13 | 3 | 2 | – | – | 12 | – | 4 | – | 44 | – | 10 |
| 1 | – | – | – | – | – | – | – | 9 | – | 27 | 7 | – | 2 | 1 | – | 6 | – | 5 | 2 | 1 | 2 | 11 |
| *13* | – | *6* | – | – | – | *5* | *1* | *34* | – | *73* | *46* | *5* | *6* | *9* | *2* | *55* | – | *18* | – | *27* | *5* | 12 |
| 1 | – | – | – | – | – | 3 | – | 5 | – | 9 | 11 | 1 | 1 | 2 | – | 8 | – | 6 | – | 3 | – | 13 |
| 3 | – | – | – | – | – | – | – | – | – | 22 | 15 | 1 | 1 | – | – | 6 | – | 4 | – | 4 | – | 14 |
| 1 | – | 1 | – | – | – | – | – | 7 | – | 6 | 6 | – | – | 2 | 1 | 9 | – | – | – | 1 | 1 | 15 |
| 2 | – | 2 | – | – | – | – | – | 7 | – | 9 | 3 | 1 | 2 | 3 | 1 | 3 | – | 2 | – | 1 | – | 16 |
| – | – | – | – | – | – | 2 | – | 7 | – | 7 | 6 | – | 1 | 2 | – | 7 | – | – | – | – | 2 | 17 |
| 4 | – | – | – | – | – | – | – | 2 | – | 11 | 2 | 2 | – | – | – | 13 | – | 2 | – | 9 | – | 18 |
| 1 | – | – | – | – | – | – | 1 | 4 | – | 5 | 2 | – | 1 | – | – | 5 | – | 1 | – | 4 | – | 19 |
| 1 | – | 3 | – | – | – | – | – | 2 | – | 4 | 1 | – | – | – | – | 4 | – | 3 | – | 5 | 2 | 20 |
| *4* | – | *1* | – | – | – | *1* | – | *39* | – | *55* | *40* | *3* | *7* | *6* | *2* | *41* | – | *8* | *3* | *13* | *1* | 21 |
| 1 | – | – | – | – | – | – | – | 6 | – | 5 | 5 | – | 2 | – | – | 6 | – | 1 | – | – | – | 22 |
| – | – | – | – | – | – | – | – | 1 | – | 2 | 2 | – | – | – | – | 3 | – | – | – | – | – | 23 |
| – | – | – | – | – | – | – | – | 2 | – | 12 | 4 | 3 | 2 | – | – | 10 | – | 1 | – | 2 | – | 24 |
| – | – | – | – | – | – | – | – | 18 | – | 1 | 3 | – | 1 | 1 | – | 3 | – | 1 | – | – | – | 25 |
| – | – | – | – | – | – | – | – | 5 | – | 6 | 5 | – | 1 | – | – | 5 | – | – | – | 4 | 1 | 26 |
| 1 | – | – | – | – | – | – | – | 1 | – | 3 | – | – | – | 1 | – | 4 | – | – | – | – | – | 27 |
| 1 | – | – | – | – | – | – | – | 1 | – | 18 | 12 | – | 1 | – | – | 3 | – | – | 3 | – | – | 28 |
| – | – | – | – | – | – | 1 | – | 2 | – | 4 | 2 | – | – | – | – | 2 | – | 1 | – | 1 | – | 29 |
| – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | 1 | – | 1 | – | 2 | – | – | – | 30 |
| – | – | – | – | – | – | – | – | – | – | 1 | 2 | – | – | – | – | – | – | – | – | – | – | 31 |
| – | – | 1 | – | – | – | – | – | 1 | – | 1 | 5 | – | – | – | – | 2 | – | – | – | 2 | – | 32 |
| – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | – | 1 | – | 2 | – | – | – | 33 |
| 1 | – | – | – | – | – | – | – | – | – | 1 | – | – | – | 3 | 2 | 1 | – | – | – | 4 | – | 34 |
| *6* | – | *1* | – | – | – | *13* | – | *56* | *1* | *45* | *50* | *3* | *6* | *8* | *2* | *30* | – | *20* | *4* | *13* | *1* | 35 |
| – | – | – | – | – | – | – | – | 12 | – | – | 2 | – | – | 2 | 1 | – | – | – | – | – | – | 36 |
| – | – | – | – | – | – | 6 | – | 1 | 1 | – | 10 | – | – | – | – | – | – | – | 3 | 3 | 1 | 37 |
| – | – | – | – | – | – | – | – | 1 | – | 1 | 2 | 1 | – | – | – | 2 | – | – | – | – | – | 38 |
| – | – | – | – | – | – | – | – | 3 | – | 2 | 1 | – | 1 | – | – | 4 | – | – | – | – | – | 39 |
| – | – | – | – | – | – | – | – | 2 | – | 3 | – | – | 1 | – | – | – | – | 6 | – | 1 | – | 40 |
| – | – | – | – | – | – | 3 | – | 2 | – | 5 | 6 | 1 | – | – | – | 1 | – | 1 | – | 1 | – | 41 |
| – | – | – | – | – | – | – | – | – | – | 2 | 1 | – | – | 1 | – | 2 | – | 2 | – | 2 | – | 42 |
| – | – | – | – | – | – | 2 | – | – | – | 3 | – | – | – | – | – | – | – | – | – | 4 | – | 43 |
| – | – | – | – | – | – | – | – | 1 | – | 2 | 1 | – | 1 | – | – | 1 | – | – | – | – | – | 44 |
| 2 | – | – | – | – | – | – | – | 1 | – | 2 | – | – | – | – | – | 1 | – | – | – | – | – | 45 |
| – | – | – | – | – | – | – | – | 2 | – | 3 | 1 | – | – | – | – | 2 | – | – | – | – | – | 46 |
| – | – | – | – | – | – | – | – | 3 | – | 2 | 1 | – | – | 2 | – | – | – | 1 | – | 2 | – | 47 |
| – | – | – | – | – | – | – | – | 4 | – | – | – | – | – | – | – | 4 | – | 1 | – | – | – | 48 |
| – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 49 |
| – | – | – | – | – | – | – | – | – | – | 3 | 3 | – | – | – | – | – | – | – | – | – | – | 50 |
| 1 | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | 3 | – | 51 |

Commonwealth. Owing to the delay by physicians in returning death certificates sent them for

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | CITIES AND TOWNS GROUPED IN ORDER OF POPULATION. | Population estimated as of July 1, 1918. | 19A | | 9 | | 61A | | 19B | | 92 | | 6 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Chicken Pox. | | Diphtheria. | | Cerebrospinal Meningitis. | | German Measles. | | Lobar Pneumonia. | | Measles. | |
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,255 | – | – | 3 | – | – | – | – | – | – | 11 | – | – |
| 53 | Weymouth, | 14,659 | – | – | 2 | – | – | – | – | – | – | 3 | – | – |
| 54 | Winthrop, | 14,443 | – | – | – | – | – | – | – | – | 4 | 1 | – | – |
| 55 | Milford, | 14,088 | – | – | – | – | – | – | – | – | – | 1 | – | – |
| 56 | Greenfield, | 14,028 | 1 | – | 4 | – | – | – | – | – | – | 1 | – | – |
| 57 | Wakefield, | 13,664 | 1 | – | 4 | – | – | – | – | – | 1 | – | – | – |
| 58 | Plymouth, | 13,430 | – | – | 2 | – | – | – | – | – | – | 6 | – | – |
| 59 | Adams, | 13,340 | – | – | – | – | – | – | – | – | – | – | – | – |
| 60 | Clinton, | 13,266 | – | – | 1 | – | 1 | – | – | – | – | 1 | – | – |
| 61 | Webster, | 13,242 | – | – | 4 | 1 | – | – | – | – | – | – | – | – |
| 62 | Norwood, | 12,879 | – | – | – | – | – | – | – | – | – | – | – | – |
| 63 | West Springfield, | 12,696 | – | – | – | – | – | – | – | – | 6 | 4 | – | – |
| 64 | Danvers, | 12,309 | 1 | – | – | – | – | – | – | – | – | 2 | – | – |
| 65 | Dedham, | 12,172 | – | – | 4 | – | – | – | – | – | – | – | – | – |
| 66 | Natick, | 11,924 | – | – | – | – | – | – | – | – | – | – | 2 | – |
| 67 | Saugus, | 11,625 | – | – | – | – | – | – | – | – | – | 1 | – | – |
| 68 | Easthampton, | 10,692 | – | – | 6 | – | – | – | – | – | – | 2 | – | – |
| 69 | Athol, | 10,582 | – | – | – | – | – | – | – | – | – | 1 | – | – |
| 70 | Bridgewater, | 10,468 | 1 | – | 1 | – | – | – | – | – | 1 | – | – | – |
| 71 | Winchester, | 10,451 | – | – | – | – | – | – | – | – | – | 1 | – | – |
| 72 | Braintree, | 10,162 | 2 | – | 1 | – | – | – | – | – | – | 3 | – | – |
| 73 | Palmer, | 10,019 | – | – | 7 | 1 | – | – | – | – | – | 2 | – | – |
| 74 | TOWNS, 5,000–10,000. | *346,607* | *5* | – | *19* | *1* | *2* | *2* | *2* | – | *34* | *61* | *2* | – |
| 75 | TOWNS, 2,500–5,000. | *182,889* | *17* | – | *6* | *1* | – | – | – | – | *12* | *12* | *9* | – |
| 76 | TOWNS UNDER 2,500. | *212,530* | *12* | – | *4* | *1* | – | *1* | – | – | *16* | *20* | *1* | – |
| 77 | STATE INFIRMARY, | – | – | – | – | – | – | – | – | – | – | *1* | – | – |
| 78 | CAMP DEVENS, | – | *1* | – | *1* | – | *1* | *1* | – | – | *60* | *12* | *83* | – |

In addition to the above there occurred 7 cases of anterior poliomyelitis, 2 in Boston, 1 in Lowell, 1 in
of anthrax, 1 in Bolton, 1 in Boston and 1 in Camp Devens; 4 cases of dog bite (requiring antirabic
1 in Somerville and 4 in Sutton, with 4 deaths, 1 in Dracut, 1 in Gardner, 1 in Swampscott and 1 in
septic sore throat, 1 in Boston, 2 in Newton and 1 in Watertown, with 1 death in Watertown; 3 cases of
Marion, with 2 deaths, 1 in Mansfield and 1 in Winchester.

TO THE PUBLIC HEALTH — Concluded.

| 38A | | 38B | | 75A | | 19C | | 7 | | 28–29 | | 30–35 | | 1 | | 38C | | 37 | | 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Trachoma. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| - | - | - | - | - | - | - | - | - | - | 5 | 3 | - | - | - | - | 1 | - | - | - | - | - | 52 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - | 53 |
| - | - | - | - | - | - | 1 | - | 1 | - | - | - | - | - | - | - | 1 | - | 1 | - | - | - | 54 |
| - | - | - | - | - | - | - | - | 2 | - | - | 2 | - | - | - | - | - | - | - | - | - | - | 55 |
| - | - | - | - | - | - | - | - | 8 | - | 1 | 1 | - | - | - | - | - | - | - | - | - | - | 56 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 57 |
| 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - | - | - | 58 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 1 | - | - | - | - | - | 59 |
| - | - | - | - | - | - | - | - | 2 | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 60 |
| - | - | - | - | - | - | - | - | - | - | 5 | 1 | - | 1 | 1 | 1 | - | - | - | - | - | - | 61 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 62 |
| 1 | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 63 |
| - | - | - | - | - | - | - | - | - | - | 1 | 3 | - | - | - | - | - | - | 4 | - | - | - | 64 |
| - | - | - | - | - | - | - | - | 3 | - | 1 | - | - | - | - | - | - | - | - | - | - | - | 65 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | 2 | - | 2 | - | 2 | - | - | - | 66 |
| - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | 1 | - | - | 67 |
| - | - | - | - | - | - | - | - | - | - | 1 | 2 | - | - | - | - | - | - | - | - | - | - | 68 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 | - | - | - | 69 |
| - | - | 1 | - | - | - | - | - | 4 | - | - | - | - | - | - | - | 2 | - | - | - | - | - | 70 |
| 1 | - | - | - | - | - | - | - | - | - | - | - | 1 | 1 | - | - | - | - | - | - | 2 | - | 71 |
| - | - | - | - | - | - | - | - | - | - | 1 | 1 | - | - | - | - | 5 | - | - | - | - | - | 72 |
| - | - | - | - | - | - | 1 | - | 4 | - | 1 | 2 | - | - | - | - | - | - | - | - | - | - | 73 |
| *1* | - | *1* | - | *1* | - | *3* | - | *26* | - | *12* | *37* | *1* | *4* | *6* | *1* | *15* | - | *1* | *1* | *25* | *2* | 74 |
| *1* | - | - | - | - | - | *3* | - | *5* | *2* | *4* | *20* | - | *4* | *2* | *1* | *5* | - | - | - | *8* | *4* | 75 |
| - | - | *1* | - | - | - | *1* | - | *14* | - | *7* | *27* | *1* | *1* | *4* | - | *85* | - | *41* | - | *7* | - | 76 |
| - | - | - | - | - | - | - | *1* | - | - | *9* | *16* | *1* | *2* | - | - | *23* | - | *8* | *4* | - | - | 77 |
| - | - | - | - | - | - | *154* | - | *2* | - | - | - | - | - | - | - | *83* | - | *94* | - | - | - | 78 |

**Medford, 1 in Mendon, 1 in Milford and 1 in Ware, with 2 deaths, 1 in Lowell and 1 in Mendon; 3 cases treatment), 1 in Lowell, 1 in New Bedford and 2 in Worcester; 6 cases of dysentery, 1 in New Bedford, Wellesley; 2 cases of malaria, 1 in Lynn and 1 in Natick; 1 case of pellagra in Northampton; 4 cases of smallpox, 2 in Gloucester and 1 in West Springfield; and 2 cases of tetanus, 1 in Cambridge and 1 in**

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1918. | 19A Chicken Pox. |  | 9 Diphtheria. |  | 61A Ep. Cerebrospinal Meningitis. |  | 19B German Measles. |  | 92 Lobar Pneumonia. |  | 6 Measles. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,920,988 | 256 | 1 | 584 | 72 | 21 | 20 | 20 | – | 1,202 | 843 | 343 | 4 |
| 2 | Cities over 200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Boston, | 793,471 | 56 | – | 179 | 27 | 4 | 7 | 5 | – | 269 | 136 | 33 | 1 |
| 4 | Cities, 150,000–200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Worcester, | 173,419 | 3 | – | 17 | 1 | – | – | – | – | 85 | 53 | 36 | 1 |
| 6 | Cities, 100,000–150,000. | *578,593* | *36* | – | *97* | *13* | *3* | *3* | *2* | – | *220* | *133* | *43* | *1* |
| 7 | Fall River, | 128,317 | 5 | – | 18 | 2 | 1 | 1 | 1 | – | 58 | 11 | 23 | 1 |
| 8 | New Bedford, | 117,855 | 8 | – | 21 | 5 | – | 1 | – | – | 16 | 10 | 2 | – |
| 9 | Springfield, | 111,983 | 5 | – | 22 | 4 | – | – | 1 | – | 121 | 70 | – | – |
| 10 | Cambridge, | 111,379 | 14 | – | 12 | – | 2 | 1 | – | – | 15 | 27 | 4 | – |
| 11 | Lowell, | 109,059 | 4 | – | 24 | 2 | – | – | – | – | 10 | 15 | 14 | – |
| 12 | Cities, 50,000–100,000. | *569,719* | *33* | *1* | *101* | *11* | *2* | *4* | *1* | – | *171* | *145* | *10* | – |
| 13 | Lynn, | 99,952 | 5 | – | 21 | 2 | – | – | 1 | – | 16 | 22 | 3 | – |
| 14 | Lawrence, | 93,060 | – | – | 8 | 2 | – | – | – | – | 13 | 16 | 1 | – |
| 15 | Somerville, | 93,026 | 2 | 1 | 32 | 2 | – | 1 | – | – | 11 | 13 | 1 | – |
| 16 | Brockton, | 65,746 | 3 | – | 6 | – | – | – | – | – | 4 | – | 2 | – |
| 17 | Holyoke, | 62,796 | 1 | – | 4 | 1 | – | – | – | – | 16 | 37 | 1 | – |
| 18 | Haverhill, | 52,873 | 20 | – | 9 | 1 | 1 | 1 | – | – | 87 | 32 | 1 | – |
| 19 | Malden, | 51,798 | – | – | 19 | 3 | 1 | 2 | – | – | 11 | 11 | – | – |
| 20 | Chelsea, | 50,468 | 2 | – | 2 | – | – | – | – | – | 13 | 14 | 1 | – |
| 21 | Cities and Towns, 25,000–50,000. | *487,764* | *29* | – | *75* | *12* | *4* | *3* | *2* | – | *71* | *74* | *47* | – |
| 22 | Quincy, | 45,827 | 4 | – | 9 | – | – | – | – | – | 2 | 3 | 1 | – |
| 23 | Newton, | 45,234 | 5 | – | 12 | 3 | 1 | – | – | – | 2 | 6 | 1 | – |
| 24 | Pittsfield, | 44,410 | 1 | – | 1 | – | – | 1 | – | – | 5 | 11 | 1 | – |
| 25 | Salem, | 41,082 | 2 | – | 8 | 1 | 2 | 2 | – | – | 19 | 8 | 2 | – |
| 26 | Fitchburg, | 40,830 | 4 | – | 8 | 1 | – | – | – | – | 16 | 4 | 3 | – |
| 27 | Everett, | 40,435 | 4 | – | 4 | – | – | – | – | – | 6 | 12 | – | – |
| 28 | Taunton, | 37,381 | 2 | – | 1 | – | – | – | – | – | 2 | 3 | 36 | – |
| 29 | Brookline, | 37,147 | 4 | – | 5 | – | 1 | – | 1 | – | 13 | 5 | 1 | – |
| 30 | Medford, | 35,230 | 2 | – | 8 | 3 | – | – | – | – | – | 5 | 2 | – |
| 31 | Chicopee, | 33,177 | – | – | 11 | 2 | – | – | – | – | – | 5 | – | – |
| 32 | Waltham, | 31,643 | – | – | – | 1 | – | – | – | – | 4 | 5 | – | – |
| 33 | Revere, | 29,643 | – | – | 5 | 1 | – | – | – | – | 1 | 5 | – | – |
| 34 | Beverly, | 25,725 | 1 | – | 3 | – | – | – | 1 | – | 1 | 2 | – | – |
| 35 | Cities and Towns, 10,000–25,000. | *575,996* | *42* | – | *64* | *7* | *3* | *1* | *3* | – | *117* | *130* | *81* | – |
| 36 | Gloucester, | 24,529 | 2 | – | 1 | – | – | – | – | – | 3 | 4 | – | – |
| 37 | Northampton, | 23,081 | – | – | 3 | 1 | – | – | – | – | 6 | 7 | – | – |
| 38 | North Adams,[1] | 22,045 | 1 | – | – | – | – | – | – | – | 2 | 2 | – | – |
| 39 | Peabody, | 20,489 | 2 | – | 1 | – | – | – | – | – | – | – | 15 | – |
| 40 | Attleboro, | 19,933 | – | – | – | – | – | – | – | – | 4 | 2 | 2 | – |
| 41 | Westfield, | 19,929 | – | – | 14 | 3 | 1 | – | – | – | 12 | 8 | – | – |
| 42 | Watertown, | 18,851 | – | – | 6 | – | – | – | 2 | – | 7 | 11 | – | – |
| 43 | Framingham, | 17,728 | 2 | – | 1 | – | – | – | – | – | 6 | 6 | – | – |
| 44 | Leominster, | 17,688 | 10 | – | 1 | – | – | – | – | – | 10 | 6 | 54 | – |
| 45 | Melrose, | 17,627 | – | – | – | – | – | – | – | – | 8 | 6 | – | – |
| 46 | Gardner, | 17,451 | 2 | – | 8 | – | – | – | – | – | 11 | 9 | – | – |
| 47 | Arlington, | 17,264 | – | – | 3 | – | 1 | – | – | – | 3 | 6 | – | – |
| 48 | Woburn, | 17,116 | 1 | – | – | – | – | 1 | – | – | – | – | – | – |
| 49 | Marlborough, | 15,680 | 1 | – | – | – | – | – | – | – | – | 2 | – | – |
| 50 | Methuen, | 15,649 | – | – | – | – | – | – | – | – | 3 | 1 | 1 | – |
| 51 | Newburyport, | 15,542 | 11 | – | – | – | – | – | – | – | 3 | 3 | 2 | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the addition and correction, these deaths, while approximately correct, are not absolutely complete.

# TO THE PUBLIC HEALTH,[1] DECEMBER, 1918.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28–29 Tuberculosis, Pulmonary. | | 30–35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 90 | – | 26 | – | 9 | – | 134 | – | 393 | 5 | 528 | 446 | 41 | 55 | 44 | 7 | 645 | – | 273 | 24 | 217 | 30 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 32 | – | 14 | – | 5 | – | 13 | – | 90 | 1 | 166 | 83 | 13 | 12 | 6 | 1 | 364 | – | 112 | 7 | 44 | 5 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 6 | – | 3 | – | – | – | – | – | 14 | – | 20 | 22 | 1 | 4 | – | – | 34 | – | 26 | 2 | 15 | 2 | 5 |
| *21* | – | *5* | – | – | – | *6* | – | *42* | – | *119* | *81* | *12* | *17* | *9* | *2* | *65* | – | *37* | *3* | *48* | *8* | 6 |
| 5 | – | 3 | – | – | – | 2 | – | 4 | – | 33 | 16 | 3 | 2 | 6 | 2 | 17 | – | 3 | 2 | 17 | 3 | 7 |
| 8 | – | – | – | – | – | 3 | – | 3 | – | 32 | 13 | 4 | 7 | 1 | – | 9 | – | 1 | – | 11 | 3 | 8 |
| 3 | – | 1 | – | – | – | 1 | – | 7 | – | 12 | 9 | 1 | 1 | – | – | 8 | – | 13 | 1 | 8 | 2 | 9 |
| 1 | – | – | – | – | – | – | – | 3 | – | 12 | 23 | – | 3 | 2 | – | 9 | – | 5 | – | 12 | – | 10 |
| 4 | – | 1 | – | – | – | – | – | 25 | – | 30 | 20 | 4 | 4 | – | – | 22 | – | 15 | – | – | – | 11 |
| *16* | – | *1* | – | *2* | – | *6* | – | *48* | *2* | *67* | *54* | *5* | *4* | *7* | *1* | *35* | – | *17* | *2* | *34* | *8* | 12 |
| 1 | – | – | – | – | – | 1 | – | 8 | 1 | 9 | 12 | 2 | 1 | 1 | 1 | 10 | – | 3 | – | 7 | 1 | 13 |
| 1 | – | – | – | – | – | 3 | – | 2 | – | 23 | 9 | – | – | 3 | – | – | – | 5 | – | 2 | 1 | 14 |
| 1 | – | – | – | 1 | – | – | – | 8 | – | 9 | 4 | 1 | – | – | – | 1 | – | 2 | – | 3 | 1 | 15 |
| 8 | – | – | – | – | – | – | – | 6 | – | 7 | 7 | – | – | 1 | – | 13 | – | 3 | – | 3 | – | 16 |
| – | – | – | – | – | – | – | – | 17 | 1 | 2 | 11 | 1 | 2 | 1 | – | 1 | – | – | 1 | 1 | 1 | 17 |
| 1 | – | – | – | – | – | 2 | – | 2 | – | 7 | 3 | 1 | 1 | – | – | 7 | – | 2 | 1 | 14 | 2 | 18 |
| 2 | – | – | – | – | – | – | – | 3 | – | 1 | 3 | – | – | – | – | 1 | – | 2 | – | – | – | 19 |
| 2 | – | 1 | – | 1 | – | – | – | 2 | – | 9 | 5 | – | – | 1 | – | 2 | – | – | – | 4 | 2 | 20 |
| *6* | – | – | – | – | – | *2* | – | *60* | *1* | *59* | *59* | *4* | *6* | *4* | – | *25* | – | *5* | *4* | *18* | *1* | 21 |
| – | – | – | – | – | – | – | – | 3 | – | 6 | 3 | 1 | 1 | – | – | 1 | – | 1 | 1 | 5 | – | 22 |
| 1 | – | – | – | – | – | 1 | – | 4 | – | 5 | 4 | – | 1 | 1 | – | 1 | – | – | – | 1 | – | 23 |
| 2 | – | – | – | – | – | 1 | – | 4 | – | 10 | 9 | 2 | – | – | – | 5 | – | 1 | – | 1 | – | 24 |
| 1 | – | – | – | – | – | – | – | 16 | – | 3 | 3 | – | – | – | – | 3 | – | – | – | 1 | – | 25 |
| – | – | – | – | – | – | – | – | 4 | – | 7 | 5 | – | 1 | – | – | – | – | – | – | – | – | 26 |
| 1 | – | – | – | – | – | – | – | 1 | – | 4 | 4 | 1 | – | 2 | – | 1 | – | – | – | – | – | 27 |
| 1 | – | – | – | – | – | – | – | 2 | – | 10 | 10 | – | – | – | – | 5 | – | – | 3 | 1 | – | 28 |
| – | – | – | – | – | – | – | – | 7 | – | – | 6 | – | – | – | – | – | – | – | – | 2 | – | 29 |
| – | – | – | – | – | – | – | – | 2 | – | 3 | 1 | – | 1 | – | – | 2 | – | – | – | – | – | 30 |
| – | – | – | – | – | – | – | – | – | – | 7 | 7 | – | 2 | – | – | – | – | – | – | – | – | 31 |
| – | – | – | – | – | – | – | – | 11 | 1 | 3 | 5 | – | – | – | – | 4 | – | 1 | – | 4 | – | 32 |
| – | – | – | – | – | – | – | – | 5 | – | – | – | – | – | – | – | 3 | – | 2 | – | – | 1 | 33 |
| – | – | – | – | – | – | – | – | 1 | – | 1 | 2 | – | – | 1 | – | – | – | – | – | 3 | – | 34 |
| *8* | – | – | – | *2* | – | *10* | – | *81* | *1* | *43* | *46* | *4* | *5* | *7* | *2* | *28* | – | *14* | – | *33* | *3* | 35 |
| 1 | – | – | – | 1 | – | – | – | 26 | – | 1 | – | – | – | 1 | – | – | – | 1 | – | – | – | 36 |
| – | – | – | – | – | – | 1 | – | 2 | – | 1 | 6 | – | – | – | 2 | – | – | – | – | 2 | 1 | 37 |
| – | – | – | – | – | – | – | – | – | – | 3 | 2 | – | – | – | – | – | – | – | – | – | – | 38 |
| – | – | – | – | – | – | – | – | – | – | 1 | 2 | – | – | 3 | – | – | – | – | – | – | – | 39 |
| 1 | – | – | – | – | – | – | – | 3 | – | 1 | 1 | – | 2 | – | – | – | – | 4 | – | 10 | 1 | 40 |
| – | – | – | – | – | – | 1 | – | 6 | – | 2 | 7 | – | – | – | – | 1 | – | – | – | – | – | 41 |
| – | – | – | – | 1 | – | – | – | – | – | – | 1 | – | – | – | – | 2 | – | 1 | – | – | – | 42 |
| – | – | – | – | – | – | – | – | – | – | 3 | 2 | – | – | – | – | 1 | – | – | – | 1 | – | 43 |
| – | – | – | – | – | – | – | – | 1 | – | 3 | 1 | 1 | – | – | – | 2 | – | – | – | 3 | – | 44 |
| 4 | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | – | – | – | – | – | – | 45 |
| – | – | – | – | – | – | – | – | 7 | – | 6 | 2 | – | – | – | – | 1 | – | – | – | – | – | 46 |
| – | – | – | – | – | – | – | – | 3 | – | 4 | 3 | – | – | – | – | 1 | – | – | – | 1 | 1 | 47 |
| – | – | – | – | – | – | – | – | 5 | – | 2 | – | – | – | – | – | 3 | – | – | – | 1 | – | 48 |
| – | – | – | – | – | – | – | – | 1 | – | 1 | 1 | – | – | – | – | – | – | – | – | – | – | 49 |
| – | – | – | – | – | – | – | – | – | – | 4 | 1 | – | – | 1 | – | – | – | – | – | 3 | – | 50 |
| – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | 2 | – | – | – | 3 | – | 51 |

Commonwealth. Owing to the delay by physicians in returning death certificates sent them for

## Cases and Deaths from Diseases Dangerous

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1918. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,255 | – | – | – | – | – | – | – | – | – | **10** | 2 | – |
| 53 | Weymouth, | 14,659 | – | – | – | – | – | – | – | – | – | **3** | – | – |
| 54 | Winthrop, | 14,443 | 1 | – | 1 | – | 1 | – | – | – | 3 | **2** | – | – |
| 55 | Milford, | 14,088 | – | – | 1 | – | – | – | – | – | 2 | **3** | 1 | – |
| 56 | Greenfield, | 14,028 | – | – | 4 | **1** | – | – | – | – | 2 | **1** | 2 | – |
| 57 | Wakefield, | 13,664 | – | – | 5 | – | – | – | – | – | – | **1** | – | – |
| 58 | Plymouth, | 13,430 | – | – | 2 | **1** | – | – | – | – | – | **14** | – | – |
| 59 | Adams, | 13,340 | – | – | 1 | – | – | – | – | – | – | **1** | – | – |
| 60 | Clinton, | 13,266 | – | – | – | – | – | – | – | – | 7 | **3** | – | – |
| 61 | Webster, | 13,242 | – | – | – | – | – | – | – | – | – | **1** | – | – |
| 62 | Norwood, | 12,879 | – | – | – | – | – | – | – | – | 4 | **2** | 1 | – |
| 63 | West Springfield, | 12,696 | – | – | 1 | – | – | – | – | – | 2 | **7** | – | – |
| 64 | Danvers, | 12,309 | – | – | – | – | – | – | – | – | 5 | **1** | – | – |
| 65 | Dedham, | 12,172 | 2 | – | 3 | **1** | – | – | – | – | – | – | – | – |
| 66 | Natick, | 11,924 | – | – | – | – | – | – | – | – | 5 | **2** | – | – |
| 67 | Saugus, | 11,625 | – | – | – | – | – | – | – | – | – | **2** | – | – |
| 68 | Easthampton, | 10,692 | – | – | – | – | – | – | – | – | – | **1** | – | – |
| 69 | Athol, | 10,582 | – | – | – | – | – | – | – | – | 1 | – | 1 | – |
| 70 | Bridgewater, | 10,468 | 1 | – | – | – | – | – | – | – | – | – | – | – |
| 71 | Winchester, | 10,451 | – | – | – | – | – | – | 1 | – | 6 | – | – | – |
| 72 | Braintree, | 10,162 | 6 | – | 2 | – | – | – | – | – | 2 | **3** | – | – |
| 73 | Palmer, | 10,019 | – | – | 6 | – | – | – | – | – | – | – | – | – |
| 74 | TOWNS, 5,000–10,000. | *346,607* | *32* | – | *29* | – | *2* | – | *6* | – | *84* | *78* | *6* | – |
| 75 | TOWNS, 2,500–5,000. | *182,889* | *13* | – | *12* | *1* | – | – | *1* | – | *94* | *31* | *45* | *1* |
| 76 | TOWNS UNDER 2,500. | *212,530* | *9* | – | *8* | – | *1* | *1* | – | – | *39* | *51* | – | – |
| 77 | STATE INFIRMARY, | – | – | – | *1* | – | – | – | – | – | – | *1* | – | – |
| 78 | CAMP DEVENS, | – | *3* | – | *1* | – | *2* | *1* | – | – | *52* | *11* | *42* | – |

In addition to the above there occurred 1 death from anthrax in Athol; 3 cases of anterior poliomyelitis, 1 case of dog bite (requiring antirabic treatment) in Lawrence; 1 case of dysentery in Lawrence, with 1 septic sore throat, 2 in Boston, 1 in Brookline, 3 in Fall River, 2 in Haverhill, 1 in Salem and 1 in Gloucester and 1 in Wakefield, with 2 deaths, 1 in Gloucester and 1 in Malden.

TO THE PUBLIC HEALTH — Concluded.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28–29 Tuberculosis, Pulmonary. | | 30–35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 1 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 52 |
| – | – | – | – | – | – | – | – | 4 | – | 1 | 1 | – | – | – | – | 1 | – | 1 | – | – | – | 53 |
| – | – | – | – | – | – | 1 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | 54 |
| – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 1 | – | – | – | – | – | 55 |
| – | – | – | – | – | – | 1 | – | 5 | – | 1 | – | – | – | – | – | – | – | 1 | – | 2 | – | 56 |
| – | – | – | – | – | – | 1 | – | 1 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | 57 |
| – | – | – | – | – | – | – | – | – | – | – | 4 | – | – | – | – | – | – | – | – | – | – | 58 |
| 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 3 | – | – | – | – | – | 59 |
| – | – | – | – | – | – | – | – | 1 | – | 1 | 3 | 1 | 1 | – | – | – | – | 2 | – | 1 | – | 60 |
| – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | 4 | – | 61 |
| – | – | – | – | – | – | – | – | – | – | 2 | 2 | – | – | – | – | – | – | – | – | – | – | 62 |
| – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | 63 |
| – | – | – | – | – | – | 4 | – | 4 | – | – | 2 | – | 1 | – | – | 3 | – | 1 | – | – | – | 64 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 65 |
| – | – | – | – | – | – | 1 | – | – | – | 1 | 1 | – | – | 1 | – | 1 | – | – | – | – | – | 66 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | 67 |
| – | – | – | – | – | – | – | – | – | – | 1 | 1 | 1 | 1 | – | – | – | – | – | – | – | – | 68 |
| – | – | – | – | – | – | – | – | – | – | – | – | 1 | – | 1 | – | – | – | – | – | 2 | – | 69 |
| – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 3 | – | – | – | 70 |
| – | – | – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | 1 | – | – | – | – | – | 71 |
| – | – | – | – | – | – | – | – | 6 | 1 | – | – | – | – | – | – | 2 | – | – | – | – | – | 72 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | 73 |
| – | – | *3* | – | – | – | *1* | – | *28* | – | *29* | *26* | *1* | *4* | *3* | *1* | *8* | – | *3* | *2* | *24* | *1* | 74 |
| *1* | – | – | – | – | – | *6* | – | *12* | – | *8* | *21* | – | *3* | *3* | – | *10* | – | *1* | – | – | – | 75 |
| – | – | – | – | – | – | *2* | – | *14* | – | *5* | *36* | – | – | *5* | – | *2* | – | *13* | – | *1* | *2* | 76 |
| – | – | – | – | – | – | – | – | – | – | *12* | *17* | *1* | – | – | – | *19* | – | *3* | *4* | – | – | 77 |
| – | – | – | – | – | – | *88* | – | *4* | – | – | *1* | – | – | – | – | *55* | – | *42* | – | – | – | 78 |

1 in Chelsea, 1 in Haverhill and 1 in Topsfield, with 3 deaths, 1 in Chelsea, 1 in Sutton and 1 in Topsfield; death in Lawrence; 3 cases of malaria, 1 in Boston, 1 in Camp Devens and 1 in Springfield; 10 cases of Winchendon, with 3 deaths, 1 in Fall River, 1 in Newton and 1 in Salem; 2 cases of tetanus, 1 in

# MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

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# THE COMMONHEALTH

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## BI-MONTHLY BULLETIN

MASSACHUSETTS
STATE DEPARTMENT OF HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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# BEDSIDE AND GENERAL PUBLIC HEALTH NURSING IN A COMMUNITY OF 65,000 PEOPLE.

By Mary McGee, R.N., Supervisor of Nurses, Visiting Nurse Association, Brockton, Mass.

THE first point for consideration in the establishment of a plan for general nursing is the method of organization, and this article will be an attempt to describe general public health nursing carried on under visiting nurse associations, co-operating with State and local boards of health. The first essential is a well-organized board of directors or managers, varying in numbers from fifteen to thirty. They should represent the community, and should be people who are interested in the social problems of to-day and to-morrow. It is no longer considered wise to add the names of people of wealth and influence unless they have time and ability to give to the work. The duties of such a board are the development of a policy on which to carry on the work and the raising of funds to cover the expense. For purposes of administration it is necessary to have three or four or more committees, and it may be well to consider the committee on nursing, whose chief function is the appointment of nurses and the solution of nursing problems. It is important that the chairman should be a capable woman, and one who is willing to give of her time when problems are presented. It is also necessary that there should be close working relations between the chairman and the superintendent of nurses, who should report regularly to her and consult her when problems arise. An active finance committee is necessary to raise money for the support of the work, and to see that money is being wisely spent. A committee for the purchase of supplies is necessary, and other committees may be appointed when there is need.

The following methods are the more general ones for the raising of funds for supporting the work: membership dues, donations, fees from patients, fees from the Metropolitan Life Insurance Company for services to industrial policy holders, from Boards of Health and Industrial corporations, and from bazaars, concerts, flower day fêtes, etc. Payment of fees by industrial concerns should be encouraged until such time as a satisfactory system of health insurance or minimum wage has been established. As long as we are without a minimum wage there can be little question about a system of health insurance being the more desirable method of providing skilled medical and nursing care to the laboring man and his family. The question of fees received from patients is important. Public health nursing is often a source of help to the rich and to people of moderate means as well as to the poor. Often a sudden, acute illness is met in the rich man's family, and it is not always possible to obtain the services of a nurse from the registry, or the service of a full-time nurse may not be required. Here the public health nurse may step in and render a service, provided a definite policy of receiving money for nursing care has been established. It is important that this fee should be carefully estimated to cover the exact cost of a nurse's visit. To prevent pauperization of families by free service the nurse should encourage the payment of the fee whenever the family can pay it. When people are not able to pay the full cost of a visit they are many times able to pay a part of it, and this policy of collecting a part fee should be encouraged. On the other hand, the patient who is not able to pay should always receive the same kindness and consideration from the nurse as the paying patient.

The superintendent or head nurse should be a woman who has had a good primary education, a thorough general hospital training-school experience, and special public health training. The superintendent is responsible to the board of directors and to the staff nurses. She should be able to stimulate the interest of the board in the work, and mere statistical reports, however faithfully she may give them, will not do this, unless figures are accompanied by an intelligent explanation of the work. To her also belongs the responsibility for maintaining a high standard of nursing, and for this reason she must be careful to select nurses who are interested in the work. Every effort should be made to secure nurses who have had public health training. It is necessary that a spirit of happiness and good will prevail among the nurses, and the superintendent can do much to encourage such a spirit.

We come now to the work of the nurse and her equipment. She should wear a uniform of wash material, and all staff nurses should wear the same uniform. The association usually provides a bag fully equipped, and it should contain the following articles: two washable linen linings (changed every two weeks); a rack for six bottles containing antiseptic solutions and powders; cotton bag with sterile dressings; soap and towel for the nurse's hands; rectal tube and funnel; and washable case attached to the side of the bag, containing forceps, scissors, probe, catheter, three thermometers and tongue depressors. There should be pencil, notebook, charts, sputum and Neisser outfit and plain apron. Where ophthalmia nursing is being done argyrol, 25 per cent, should be carried. It is important that a definite nursing technique should be followed. The contents of the bag should not be handled unless the hands are clean; thermometers should be carefully cleansed before and after using; the bag should be placed on a plain chair; and care should be taken to put soiled linen and dressings in paper as soon as they are removed from the patient. The nurse should always remember that she teaches by example as well as by word.

Special nursing has some advantages over general nursing, and this is true where new lines of work are being developed; but give the general nurse a district that can be covered by one person, proper supervision, and a board of directors who have a sense of responsibility to the community, and a fine piece of public health work should be the result. The general nurse working under these conditions will know the tubercular patient before he is reported, and she will know the expectant mothers. She will also know where many of the venereal disease patients live. There can be little question that the general public health nurse has an opportunity to be of the greatest value to the community in the teaching of better health. The influence of the nurse does not cease when the patient has recovered. This is especially true in prenatal and maternity nursing. The nurse who has advised the expectant mother, and who, after delivery, has washed the baby, and who, from day to day, has cared for the mother and tried to teach her how to care for her offspring, has established friendship with the family. Later on, when conditions resume their normal aspect, her advice upon hygienic measures will be received as coming from one in authority.

There should be very close co-operation between visiting nurse associations and boards of health. There must be no friction. Nurses working under private associations doing tuberculosis, child welfare, ophthalmia and venereal disease nursing should realize that their work is a very important part of the board of health work, and that it can be done best by close team work. Just here an efficient board of directors can be of great value to the nurse and the board of health in developing the work and caring for community problems. Co-operation with the doctors is easily established through the general efficiency of the nurses: There is no group of people who value public health nursing quite as highly as the really competent physicians of the community. Nurses and social workers should work together. The nurse should not do social work in problem families when there are social workers to do it, and the public health teaching should be done by the nurse. All families in need of, or receiving, public aid should be referred to the poor department. In cities where there is a food demonstrator or dietitian, families should be referred to her for correction of errors in diet.

One of the main functions of visiting nurse associations is the development of new branches of work. At the present time we are all seeing the need for some definite system of nursing for scarlet fever and diphtheria patients, and it would seem that we had a twofold duty to the community in regard to these diseases, — on the one hand, securing treatment and diagnosis in acute throat conditions, and, on the other, securing nursing care for the patient.

History is silent about the beginnings of public health nursing. There can be little doubt that the high ideals inspired in the early ages of the Church brought some measure of the prevention of disease as well as the care of the sick. It remains for visiting nurse associations to continue the practice of setting a high standard for this one of the corporal works of mercy, and this can be done best by keeping in close touch with our own National Organization for Public Health Nursing, and our State Department of Health, provided the individual woman keeps before her the advice of Miss Gardener in her book, "Public Health Nursing," where she quotes the following words from St. Vincent de Paul: —

> Their convent must be the houses of the sick; their cell the chamber of suffering; their chapel the parish church; their cloister the streets of the city, or the wards of hospitals; in the place of the rule which binds nuns to the one enclosure there must be the general vow of obedience; the grating through which they speak must be the fear of God; the veil which shuts out the world must be holy modesty.

## A WELL-SELECTED DIET IS ONE OF THE KEYNOTES TO HEALTH.

By Lucy H. Gillett, Dietetic Bureau, Boston, Mass.

THE health of the community depends on the health of its inhabitants, and one of the fundamentals in health is food suited to the needs of these individuals. James is one of the future citizens of Boston. He is nine years old and 11 pounds underweight.

His mother took him to a dispensary one day and said she wanted him to get strong, to have red cheeks and look like other boys. James was examined by the physician, who said it was not medicine nor medical treatment which he needed, but good nourishing food. He referred him to the nutrition class at the dispensary. The boy was weighed and measured and joined a class of eighteen other boys and girls who were running a race to see who could get into prime condition first.

He did not like milk, and refused to eat vegetables, but since the "food teacher" told him that both were essential if he wanted to gain and be strong, James secretly decided to compromise by eating what seemed to him to be the lesser of two evils, — the vegetables only. He gained only an ounce or two a week, while his companions were forging ahead nobly with from one-half to a whole pound in the same length of time. Another month went by, and still James did not gain like the rest, until finally he felt ashamed of his record, and, determined to win, he too began to drink milk, — a whole quart a day. In three weeks he had gained over 2 pounds, the color was coming in his cheeks, and in due time he reached the desired goal.

Every boy and every girl ought to know how to get health; it is their birthright. There are many factors, to be sure, which determine health, such as plenty of fresh air, sunshine, sleep and exercise, cleanliness of food and person, good teeth, etc., but nothing has more influence on it than food. Perhaps we have been too confident in thinking that if we spend enough money for food, and if we get enough in quantity, the children will be as well as food can make them. Two studies made in 300 families showed that 33 per cent were not feeding the children in a way most likely to develop the healthiest and strongest men and women. The question naturally arises whether this is due to insufficient money or insufficient knowledge. In the families referred to we know that the majority were spending enough money for food to have purchased adequate nourishment for the children had the money been spent wisely.

Then is a knowledge of food and its relative values necessary? Many mothers have learned by study or experience how to feed children properly; doubtless many mothers know by instinct what foods are good for children; while others just happen to do the right thing. But how about the 33 per cent of the families in which are thousands of children where the mothers let the boys and girls eat what they want, even to allowing the two-year-old to eat freely of doughnuts and fried potatoes, and drink coffee instead of milk? Many who have come to live with us from other countries are unable to get the foods to which they have been accustomed. They do not know our foods; they fear to trust or to ask any one for advice; and they adjust themselves as best they can, which too frequently means that the second generation begins to show signs of malnutrition.

Among people who have always lived in this country many look upon milk and vegetables as luxuries. They do not know the relative value of different foods as sources of growing material for children. The children eat what the adults have, — foods which with their delicate digestive systems are not capable of coping, thus using energy in caring for foods which should be stored up for future use. They are thin or have little resistance in consequence.

In one family in which there were 8 children, all of whom were underweight and 3 of whom were tubercular suspects, the mother was feeding them to the best of her ability on bread and meat and some milk. She had been told that they should have more milk and a goodly quantity of vegetables, but she very frankly said she had no money left after getting all the meat the family had to have. When it was suggested that she buy a little less meat to provide for the milk and vegetables she hesitated for four months for fear a change in diet would cause them to go as the father had gone, — with tuberculosis. She had kept them alive, and this to her was sufficient evidence that her method was best. At last she consented to reduce the meat in order to buy the suggested foods for just one month, but at the end of this time there was such a decided improvement in the whole family that she had no desire to return to her old method, and incidentally she was spending $20 a month less for food. She had been doing as well as she knew how to do.

A well-selected diet is one of the keynotes to health.

Unfortunately, we are not able to regulate the diet through legislation; it must be done through education. In many cases education may be done through pamphlets sent to the homes and through lectures to groups of people, but there are hundreds and thousands of families where the mother has too many children to get away from home, or where she needs more help for her own personal problem than a pamphlet can give.

Just as each medical or nursing problem must be met individually, so the food problem in many families must be considered by itself because of differences in the size of the income, of the family, differences in age, because of racial customs and prejudices, occupation, nationality and other factors.

To help just such families as these the Dietetic Bureau has been established in Boston. It was started by the eighteen agencies constituting the League for Preventive Work, to help them in the families whom they know. An invitation was extended to any one who wanted to make use of it. The work grew rapidly, and at the end of a year it is coming in contact with 40 or 50 organizations in the city.

The purpose of the Bureau is to help any family, directly or through the public health nurse or social worker, with the food question in any family, or the economic aspects in determining a reasonable balance between income and food expenditure. Food values are discussed in terms of dollars and cents if need be, and the woman shown how to get not only what the family needs, but the best return for the money spent.

A lack of the knowledge of how to adjust income and food expenditures is holding many children back in normal development, and thereby decreasing the ability of future citizens. Oftentimes medicine can be of no lasting value until the diet is regulated, and quite frequently when the diet is regulated medicine is unnecessary; but in the majority of cases the doctor has not the time to sit down and plan this adjustment with the mother, and the problem of food economies is a work apart from nursing, just as nursing is apart from the practice of medicine. To meet just such a situation as this the nutrition specialist in social work has come into existence.

Her function is to go to any family referred to her and help the woman to plan the feeding of her family according to income, at the same time advising her how to keep the healthy children healthy, and how to build up those who are underweight because of improper or inadequate food.

The following instances will help to show the value of the work: —

A fourteen-year-old boy, the oldest of a family of eight, had heart trouble. The doctor said he must have a quart of milk a day. The mother did not see how she could get this extra quart, as she had barely enough to live on. If she bought this extra quart for one child it meant that the rest would have to "go hungry." Some one from the Dietetic Bureau went in to help her and found several "leaks" in her expenditures, which, when remedied, enabled her to buy the milk for the boy without sacrificing the food for the rest of the children. With this extra food the boy was soon strong enough to work an hour or two after school, thereby earning some money, part of which he used to buy the milk for himself.

In another family the baby had just died. There were four other children, all boys, who were not very strong. They were thin and pale and frequently ill. The district nurse asked some one from the Dietetic Bureau to go in and talk to the mother about the food they should have. The woman said she could not get the children to eat the things she knew were good for them, so the nutrition specialist, without mentioning the foods they ought to eat, showed them pictures of strong boys who are able to play ball and win out, and weak boys who have to stand on the curb and watch. She had pictures of foods showing how much each would do towards making them strong. Then she asked them to select the ones they were going to eat so as to get strong like the boys in the pictures. Thus oatmeal, milk, spinach and prunes were introduced into their diet with other desirable foods, and a month later the woman said: "These children are so much stronger now that I wish you had come before. If you had I know my baby would not have died."

In a third family the children were frequently out of school because of illness. They were not much below weight, but the color indicated that they were living on a starchy diet low in iron. A few minutes' conversation with the woman showed the following conditions: The man got fairly good wages, and they lived well the first four or five days of the week, but had to live on bread and coffee the last two or three days. The family felt they had enough money to live better, and asked to have help in the planning of their food. After a few visits the woman said: "We live equally well the whole week through now, and I never have to think whether our money is going to last till the end of the week or not." She also added that the children were stronger, and that the teacher had said they were doing much better work in school.

One mother said she would like to have some one come to talk to her about food, as the doctor had said the children needed plenty of nourishment, but she could not afford to spend any more for food, and she did not think any one could show her how it could be done. Her objections were finally overcome, a dietitian, or nutrition specialist, went to talk to her, and the improvement of the physical condition of the children was so rapid that the mother was very much astonished. About a month later, on an appointed day, she met the field worker at the door with paper and pencil in hand, and said: "I want you to write down just what John can eat this week. He isn't feeling so well, and I am afraid he has been eating things he shouldn't." This proved to be true, but gradually the woman learned to arrange their diet for herself, so that the children got strong and kept well. With a sigh of relief she told the social worker that she had been much distressed because she had thought she did not have enough money to feed the children properly, and now good food had made them well, and she was spending $5 less a week.

These and many similar instances show the results of this intensive work. Neither the children nor the mothers are responsible for conditions in the majority of cases. The mothers are doing the best they know how to do, but they do not realize the seriousness of malnourishment with its resulting lowered resistance. In most cases they are very glad of help. They frequently say: "I am so glad to know these things. No one ever told me before."

Since the 1st of October, 1918, one field worker has helped the children in about 150 families to get started on the road to normal condition. In these 150 families there have been about 450 children. Where it is possible to get children of school age together into a nutrition class much more can be accomplished in the same length of time, as it is much easier to get results. The spirit of competition with the question as to who is going to get into prime condition first, whether it be gaining weight or strength and resistance, puts new aspect on eating oatmeal and vegetables, drinking milk, drinking plenty of water between meals, eating slowly, resting before or after eating, going to bed early, etc. We have such a class in connection with the clinics at Maverick Dispensary in East Boston. Children who are 10 per cent or more underweight often gain from 8 to 16 ounces a week. In connection with this work, however, we find it very helpful to go to the homes and talk with the mothers in order to help them make it possible for the children to have the foods suggested. The improved physical condition, in addition to the increase in weight and the better records at school, all testify to the good accomplished.

We do not talk in terms of protein, calories and carbohydrates (though these scientific principles are the bases of all suggestions given). We do, however, tell a mother which foods will provide iron when the diet is low in iron, for every one understands its value. We are ready to suggest substitutes of equal food value which may be used as prices change, how a few cents may be saved here and there to provide for milk, and how much a woman can afford to spend for fruits and vegetables, for we always emphasize the fact that a person cannot afford to be without them. We urge the children to save the pennies ordinarily spent for candy to buy fruit for themselves. We are also ready to suggest menus, if necessary, or to show a mother how to prepare foods which are essential for the health of the family.

Any mother is glad to know how to make her children healthy, provided she can afford it, and any suggestions which show how economy may go hand in hand with health are always welcome.

The gratitude of the people helped is best determined by the disappointed expressions on their faces when a field worker says she feels that it will not be necessary for her to call again. Mothers invariably ask her to please come to see them once in a while when she is in their neighborhood. Every mother appreciates a friend who will help her out of a real difficulty, and we trust that the nutrition specialist is going to be known more and more as a friend of the malnourished child and his mother, and through them of the community.

## POSTURE AND ITS RELATION TO HEALTH.

By John Bapst Blake, M.D.

THE importance of a correct posture in developing and maintaining health is so obvious that it should be unnecessary to emphasize it; unfortunately, it is forgotten or disregarded to an alarming extent, and it is essential, therefore, that those who are interested should repeatedly bring it to the attention of the public.

Man is practically the only animal who stands and walks, and who sits habitually for considerable periods of time; other animals walk on all fours, and lie on the ground for rest. The erect posture is at best fatiguing; at its worst, it may become not only tiring, but actually an element tending towards ill health.

Posture involves the position of the feet, of the trunk and of the head, — the feet, particularly, in standing and walking; the trunk and head in sitting.

In spite of tradition, and much exhortation from parents, dancing teachers and drillmasters, the toes should *not* be held widely apart, either in standing or walking. The feet should be held parallel to one another, the heels separated from one another as far as the toes; that is to say, the parallel feet should be 8 or 10 inches apart. This is a simple rule and an absolute fact.

The great toes should point straight ahead, as is the case in healthy children, and in all people who do not confine their feet in shoes. Dr. Edward H. Bradford of Boston has emphasized this fact for years, and has illustrated it by numerous pictures, photographs and diagrams. It is unfortunate that the old "position of a soldier" was not more materially modified in the past war. Not only should the feet be parallel, but the weight should be borne largely on the outer strong side of the foot, and not on the inner, weaker side. Yet most shoes made in this country disregard and break this fundamental rule. Shoes which roll the foot inward tend to flatten the long arch of the foot, the very thing which is most undesirable. This flattening of the arch develops pain and disability in legs and back, which eventually may become not only a serious handicap, but actually a potent source of a lowered health standard.

It is still possible to obtain shoes of a fairly good pattern in this country, though it requires patience and perseverance. Such shoes should have a low broad heel (no more than three-quarters of an inch high) and straight inside line, a wide outward sweep to avoid cramping and pulling in the little toe, and a flexible arch; the shoe should lace, and be of the blucher type. The toe may be pointed, if so desired, but the point should be straight in front of the normal great toe, and not in front of the third toe, as is the almost invariable custom. The army shoe is a good outline, though not entirely ideal in other respects. The shoes with which most women, and many very sensible women, are at present crippling and distorting their feet, are as bad physiologically as they are hideous.

In sitting, a child, as well as an adult, should sit on the back of the thighs and on the bones of the pelvis intended to carry body weight, not on the small of the back. These pelvic bones are rounded tuberosities called the tuberosities of the ischium. The slumping and slipping down which characterizes so many people while sitting is partly the result of careless habits, and partly because most chairs and seats in schools, homes and public places are faulty. Chairs should be low enough to let the feet rest easily on the ground, shallow enough so that the base of the spine should be held firmly against the back of the chair, and so constructed as to give a slightly rounded support to the small of the back of the sitting person. This helps to keep the spine erect.

When standing and walking, besides keeping the feet parallel the legs should be straight, the abdomen slightly retracted, the shoulders dropped and held back, and the head balanced. This makes an erect but not a stiff nor exaggerated posture. It causes the chest to expand and minimizes muscular effort on back and legs by balance. The position of the head is such that the under border of the lower jaw is almost, but not quite, horizontal. As a matter of fact, the point of the chin in the average man should be a trifle below the level of the angle of the jaw.

These simple and primitive suggestions outline the requirements of proper pose and poise. Such posture promotes deep respiration, encourages good circulation, diminishes fatigue, and so undoubtedly favors good health. Incidentally, such a posture emphasizes the beauty and symmetry of the human body, and quite possibly acts favorably upon the human mind.

Stand straight, sit straight and keep the toes straight ahead. It is a good plan also to keep your feet on the ground while you are awake.

# A DEVELOPMENT IN THE VENEREAL DISEASE CRUSADE.

MARY R. LAKEMAN, M.D.

FOR the complete rounding out of its program for the control of venereal disease, the State Department of Health has felt the need of reaching out into the field of social service. The program now being carried out provides for clinical facilities in nineteen of the leading centers of population through the State. Satisfactory progress has been made in nearly all directions, and excellent co-operation has been given by the medical profession and by society at large, while better results are daily being attained through the greater effectiveness of the work of local boards of health in replacing under treatment those patients who have lapsed. After additional hospital facilities, now quite inadequate, have been secured, we might say that the clinical portion of the program is complete, and that each patient who applies for treatment is assured of proper medical care until such time as his disease is rendered non-infectious. For the time being, this patient is no longer a public health menace, and the responsibility for thorough treatment rests upon the physician treating the case, and upon the appreciation by a well-informed public of the necessity for long-continued regular treatment, in many cases extending over a period of years before the individual may be assured of as good results as modern methods can provide.

Even though each step in this program should be carried out effectively, it after all covers only the ground of actual infectious disease. Beyond this lies the great field of preventive medicine as it relates to this important subject. This is the field for the educational features of the program, and it is in this same field that the department needs the co-operation of every existing social agency and every movement for the betterment of community life. By taking active steps to create wholesome environment in the communities, with adequate recreation and protection for the young people of both sexes, many a potential focus of infection may be avoided before it is created. Again, it is to the social worker above all others that we must look for the discovery of many cases which would not of their own volition come to a clinic or otherwise seek treatment.

Even then there is a break in our line of attack upon this arch enemy of society, and this gap must be filled before we can present a united front, — one that can make an effective co-ordinating attack upon the "enemy at home." Beyond the reach of clinic, hospital, institution and all educational and preventive work is the individual who has taken treatment until he is declared non-infectious. We must ever face the possibility of a return of active symptoms with its concomitant period of infectivity, not to mention the possibility of reinfection in persons who are constantly exposing themselves. This raises the question of the protection of the community from the person who by his or her mode of living will inevitably become a more or less constant "carrier" of syphilis or gonorrhœa, or both. After the reduction of the first line of defence under a barrage of concerted effort on the part of health officials, social workers and every possible force in the community, the remaining outposts of the enemy, finally isolated, stand out in relief before us as the old problems of the feeble-minded, the professional prostitute, alcohol, and we know not how many others, all still strongly entrenched. Upon these a concerted fire can then be directed with greater precision, either by means of legislative action, increased institutional provision, or such other means as experience may suggest.

All the foregoing discussion is in truth but a preamble to the announcement that a first step has been taken toward the facing of the difficulties just mentioned by the fortunate acquisition on the part of the department of the services of Miss Bertha C. Lovell of the Boston Dispensary for a period of six months as special investigator. Her efforts will be directed toward the elimination of the preventable elements among this host of "repeaters," thereby clearing our vision as to the location and strength of the residual elements. It is to the generous action and the large-minded grasp of the situation as a whole on the part of the management of the Boston Dispensary that this department owes this valuable though temporary addition to its working force. Few workers have come more intimately in touch with this important feature of the problem and the part it actually plays in the whole program of venereal disease control than has Miss Lovell, and we bespeak for her the active co-operation of all social service workers, though it be almost an absurdity to ask for that upon which we have learned to rely for our warmest support and for which we have never looked in vain.

# THE PUBLIC HEALTH NURSE'S PART IN VENEREAL DISEASE CONTROL.

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THE field of the public health nurse is steadily widening. The United States Public Health Service, in a pamphlet just issued, points out her value in dealing with the problem of venereal disease control, and urges the training of more public health nurses for this newest phase of the fight for national health.

The Public Health Service speaks from experience in thus praising the work of the public health nurse, since public health nurses were employed in connection with all government venereal disease clinics in the extra-cantonment zones during the war. The part of the work which fell to these nurses included part of the examination and treatment of women patients, instruction of women patients in the care of themselves and the protection of others, the following up of delinquents, the making of social investigations, and, through the inspection of school children and through home visits, the raising of the general health standard of the community.

Of this work Surgeon-General Blue says: —

> For the first time in its history the United States Public Health Service during the recent war organized a division of public health nursing. The work which these nurses performed was of inestimable value. It is not too much to say that without their aid our success in keeping down sickness in the extra-cantonment zones, and in making the venereal disease rate in our army lower than that of any other army in modern times, could not have been achieved.

The Public Health Service does not intend to cease its war against venereal disease with the coming of peace in our war against foreign enemies. It plans, rather, to extend its campaign carried on during the war in extra-cantonment zones to every community throughout the nation. In order to succeed in this larger campaign more public health nurses are necessary, according to Surgeon-General Blue. To quote again from the leaflet: —

> In continuing our general campaign for health, and this special fight against venereal disease, we depend upon the continued assistance of public health nurses.
>
> Behind these public health nurses we hope to have the sympathetic understanding and support of all the women of the country. We believe that we will have this when it is realized fully what the nurse accomplishes for her community.

> We depend upon the women of the nation not only for understanding and support, but we depend upon them to encourage young women to take up the profession of the public health nurse, and to insist that hospitals provide training for nurses in public health service, including work in venereal diseases.
>
> In backing the public health nurse the women of the nation will be backing one of the most vital agents in the struggle against the diseases which threaten the health and prosperity of all of us, and the very life of our children, which is the life of our nation.

General Blue touches the crux of the public health nursing problem when he points out the need "that hospitals provide training for nurses in public health service, including work in venereal diseases." The needed increase in public health nurses for every phase of the public health field cannot be secured except through the co-operation of hospital training schools in providing the necessary training in public health work. The National Organization for Public Health Nursing, whose associate secretary, Miss Mary E. Lent, acted as the supervising nurse of the Public Health Service during the war, points out that —

> Since the public health nursing field is a comparatively new one, few hospitals as yet fit their graduates to enter this field. Of the 1,500 hospital training schools in the country, only about 100 now offer their pupil nurses even a most limited experience and instruction in public health nursing. Postgraduate courses are also unfortunately few in number.
>
> We need an increase of both undergraduate and postgraduate public health nursing courses, so that graduate nurses can fit themselves for the public health field, even though they have so far had no special training for it, and so that student nurses now in our hospitals may secure the training necessary for staff work in public health nursing during their undergraduate days. Postgraduate courses will also always be necessary for the executive and supervisory positions in the public health nursing field.
>
> To enable nurses to take these courses in public health work without too great financial loss to themselves, the National Organization is raising a scholarship fund of $150,000. More than half of this sum, $80,000, has already been provided, — $70,000 by the Red Cross, at the request of the National Organization, thus increasing its own original $30,000 scholarship fund to $100,000; and $10,000 by private subscription, to be used for nurses desiring to equip themselves for executive positions. Many returning army nurses and members of senior classes in training schools who had already pledged themselves to war service are already applying for these scholarships.

THE COMMONHEALTH.

Monthly Bulletin of the Massachusetts State Department of Health.

*Sent Free to any Citizen of the State.*

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

*A Slogan for 1919.* — In connection with the recent regional conference held in Boston May 15 and 16, in which foreign guests prominent in child welfare work and representatives of the Children's Bureau in Washington participated, certain definite standards were brought forward, towards which Massachusetts might strive. It is strongly urged by the State Department of Health that the following standard for the protection of the health of Massachusetts children be kept in mind by all those who are working for the betterment of our children: "A health center, where special attention will be given to maternity and infant care, for each community or group of communities; public health nurses specially trained for the work, averaging 1,000 to 2,000 of population."

This standard should not be an unusually difficult one. The State of Massachusetts at the present time averages about 1 public health nurse to 6,500 of population. Of these, however, Boston has a greater share in proportion than have the rural districts. We would be able to attain this standard very easily, indeed, if every one could only realize the importance of conserving the health of our mothers and children. This is not merely a matter of sentiment, though one would be sorry to believe that the people of Massachusetts have no sentiment about the health of the children. It is, however, a money-saving proposition as well. Healthy children are a necessity if we are to have a healthy community. A community physically or mentally below standard is an inefficient community.

*Health Centers.* — A health center is a place where people may come to learn how to keep well. It is not too expensive for any community with a population of 10,000. A health center is simplicity itself, — a single room, if no more is available, in the central part of the town, where the public health nurse and doctor in attendance can give advice to people on matters of health. This health center should be conducted by the board of health of the municipality, as it is really a municipal duty to see that the health of the citizen is preserved. Very often, however, it is more easily started by some private philanthropic agency; the Visiting Nurse Association, for example, could carry it along as a demonstration until it is finally taken over by the municipality. Such a health center need not be confined to any particular age group. Prenatal instruction can be given there; the infant can be supervised there; it can serve also as a conference center for the child of pre-school age, the school child, and the child in industry, and, for that matter, the adult. Every community, or group of communities, should have one.

*Join the A. P. H. A.* — The American Public Health Association is one of the chief factors in promoting public health in the United States.

This organization is unique and has a comprehensive scope, being open to both lay and professional public health workers.

The monthly journal publishes valuable information regarding public health development throughout the country.

Members of the association may be admitted to the sections on public health administration, laboratory, sociology, industrial hygiene, vital statistics, food and drugs.

Readers of the Bulletin are urged to become members of the association.

*Cancer.* — Posters to warn the public against the danger of delaying operation in cancer cases have been prepared and circulated to the number of 4,500 among the largest industrial plants in Massachusetts during the past few weeks. Through the co-operation of the Associated Industries of Massachusetts and the Retail Trade Board of the Chamber of Commerce the cancer posters have been displayed on the bulletin boards of 1,100 of the largest factories and 50 of the largest department stores in the State.

The posters offer free information regarding cancer to all who write to the Massachusetts Health Committee, 525 Boylston Street. Calls for this information have been received every day since the distribution of posters began. The inquirers promptly receive the latest cancer circulars of the State Department of Health and the American Society for the Control of Cancer. It is reasonable to believe that this poster campaign, the newspaper publicity resulting from it, and the distribution of circulars will save many lives and have a far-reaching influence.

Students of advertising at Boston University prepared the copy for the poster at the suggestion of the Massachusetts Health Committee, and under the technical supervision of Dr. Edward Reynolds of Boston, who is vice-president and chairman of directors of the American Society for the Control of Cancer. So well has the work been done that many calls for extra copies have been received where one copy had been sent for posting. Several Massachusetts firms have displayed from 20 to 30 copies on bulletin boards at their various shops.

The wording is as follows: —

Cancer is curable by an early operation.

In the first few weeks usually a slight operation — to be neither extensive nor expensive — is all that is necessary.

A later operation is bound to be more serious and may do no good. Early operation is the only cure. Medicine is useless.

These are danger signals for men and women over forty: if mouth or throat soreness, cracks in the skin or ulcerations do not heal quickly; if a mole, a wart or a birthmark changes color or shows signs of irritation; if you are a woman and notice any mysterious symptoms; if your stomach is always sick and you are getting thin; if there is a lump in your breast.

Cancer attacks more men and women over forty than does tuberculosis, pneumonia, typhoid fever or any chronic disease.

Cancer kills every year 80,000 United States citizens over forty years of age, — 1 man in every 14 of that age, and 1 woman in every 8.

"So preventable early and so incurable later."

If you think you have cancer do not give up in despair, and do not waste precious time with quacks or with so-called cancer cures.

Most cancers at the beginning are in positions which permit of complete removal by a very slight surgical operation — not to be dreaded at all.

Do not wait! Act quickly! It is the delay that brings suffering and untimely death.

Detailed information and free advice mailed immediately on application to the Massachusetts Health Committee, 525 Boylston Street, Boston.

## APPOINTMENTS IN THE STATE DEPARTMENT OF HEALTH.

1. Dr. Bernard W. Carey, Epidemiologist of the State Department of Health, has been appointed Director of the Division of Communicable Disease, to succeed Dr. John S. Hitchcock, who resigned, May 31, 1919.

2. Mr. Warren C. Jewett of Worcester was appointed member of the Public Health Council May 1, 1919.

## NOTES: APPOINTMENTS AND RED CROSS ACTIVITIES.

### CONNECTICUT VALLEY HEALTH DISTRICT.

The towns of Deerfield, Agawam and Belchertown each desire a public health nurse.

These towns will provide adequate salaries, expenses and transportation.

An enthusiastic nurse going into any one of these towns would have a splendid opportunity to do a constructive piece of public health work.

Dr. George T. O'Donnell, District Health Officer, is anxious for the work to begin. Needless to say, the towns themselves, having wisely made appropriations for this progressive step, are quite as eager for their plans to materialize.

### *Easthampton.*

Easthampton intends to employ a full-time school nurse in the fall.

### *South Hadley and West Springfield.*

These towns each have two public health nurses.

### *Springfield.*

The Red Cross is supplying a maternity nurse to the Visiting Nurse Association for one year.

## WACHUSETT HEALTH DISTRICT.

### *Lunenburg.*

The Fitchburg Chapter of the Red Cross and the Lunenburg Branch have contributed $600 apiece for a full-time public health nurse, whom they are anxious to place by Sept. 1, 1919.

### *Fitchburg.*

The Red Cross Chapter is providing the Visiting Nurse Association with an extra nurse and automobile.

### *Milford.*

The Red Cross Chapter is to support a school nurse under the direction of Miss Nora Rowell, chief public health nurse.

### *Leominster.*

Miss Helen F. Gill, who recently returned from service in France, is now employed by the Fortnightly Club as child welfare nurse. Miss Gill is pushing her work with much enthusiasm.

All public health work in Leominster is being affiliated with the Red Cross.

### *Ashburnham.*

Miss Katherine E. Spear is public health nurse under the Red Cross.

## BERKSHIRE HEALTH DISTRICT.

### *Lenox.*

The Visiting Nurse Association has engaged Miss Grace Murtha in place of Miss Charlotte Smith to do tuberculosis and bedside nursing.

### *Pittsfield.*

The Visiting Nurse Association is now employing Mrs. Charles Daley of Lenox as child welfare nurse.

# NEW LEGISLATION.

## GENERAL ACTS, CHAPTER 27.

### AN ACT RELATIVE TO THE DUTIES OF MEMBERS OF BOARDS OF HEALTH ACTING AS INSPECTORS OF SLAUGHTERING.

*Be it enacted, etc., as follows:*

Chapter seventy-five of the Revised Laws, as amended by section four of chapter two hundred and ninety-seven of the acts of nineteen hundred and eleven, is hereby further amended by striking out section one hundred and two and substituting the following: — *Section 102.* Such inspector, or member of a board of health acting as such inspector, as has been appointed by the board of health shall be present at all licensed slaughter houses or establishments upon the days designated for slaughter by the licensee, as provided in the preceding section, and there carefully examine the carcasses of all animals at the time of slaughter. Such inspection shall be made in such manner and under such rules and regulations as the state department of health may determine and direct. If, in the opinion of an inspector, or member of a board of health acting as such inspector, any carcass, or any meat or product thereof is diseased, corrupted, unwholesome or unfit for food, he shall seize it and cause it to be destroyed, as provided in section seventy of chapter fifty-six, and amendments thereof. [*Approved March 12, 1919.*

## GENERAL ACTS, CHAPTER 28.

### AN ACT RELATIVE TO THE COLD STORAGE OF ARTICLES OF FOOD.

*Be it enacted, etc., as follows:*

Chapter six hundred and fifty-two of the acts of nineteen hundred and twelve, as amended by chapter one hundred and forty-nine of the General Acts of nineteen hundred and seventeen, is hereby further amended by striking out section three and substituting the following: — *Section 3.* No article of food intended for human consumption shall be placed in, or retained in, cold storage if deemed by the state department of health to be diseased, tainted or otherwise unwholesome. It shall be the duty of the said department to inspect and supervise all cold-storage or refrigerating warehouses in this commonwealth, and to make such inspection of the entry or retention of articles of food therein as it may deem necessary to secure proper enforcement of this act. The members of the department, or its duly authorized agents, inspectors or employees, shall be permitted access to such establishments and all parts thereof at all reasonable times for purposes of such inspection and enforcement, or for the enforcement of any other provision of law relating to food products. The department may also appoint and designate such person or persons as it deems qualified to make the inspections herein required. [*Approved March 12, 1919.*

### GENERAL ACTS, CHAPTER 123.

### AN ACT RELATIVE TO THE SALE OF MATERIALS USED IN THE MANUFACTURE OF MATTRESSES AND SIMILAR ARTICLES.

*Be it enacted, etc., as follows:*

Chapter one hundred and forty-eight of the General Acts of nineteen hundred and fifteen is hereby amended by adding after section two a new section to be numbered three, as follows: — *Section 3.* No person shall sell or offer for sale any second hand hair, down, feathers, wool, cotton, silk floss or other materials commonly used for filling mattresses, pillows, cushions, muff beds, quilts or other similar articles, representing the same to be new material. When any such hair or other material, above specified or described is shipped enclosed in any box, crate, package or other container, it shall have attached thereto a tag containing a statement of the contents of the package together with the name of the vendor. Violation of any provision of this section shall be punished by a fine of not more than five hundred dollars, or by imprisonment for not more than six months, or by both such fine and imprisonment. [*Approved April 22, 1919.*

## ARSPHENAMINE DISTRIBUTION.

Arsphenamine is now being produced in sufficient quantity to render it available, without charge, for such physicians as are able to demonstrate to the chief of one of the State-approved venereal disease clinics their ability to administer the drug.

In the areas in which clinics are not yet established the District Health Officer of the corresponding district will secure supplies for physicians under the same conditions.

If any physician desires to acquire experience in arsphenamine administration we shall be glad to put him in touch with facilities for such experience.

## REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of March and April, 1919, samples were collected in 59 cities and towns.

There were 1,796 samples of milk examined, of which 565 were below the legal standard, 1 sample was skimmed milk below the legal standard, 7 samples were skimmed milk above the legal standard, 43 samples were skimmed milk not properly labeled, and 85 samples contained added water.

There were 228 samples of food examined, of which 62 were adulterated. These consisted of 4 samples of rancid butter; 34 samples of clams, and 3 samples of oysters, all of which contained added water; 1 sample of cocoa which was misbranded; 1 sample of decomposed eggs 1 sample of maple sugar which contained about90 per cent of cane; sugar; 6 samples of sausage, 3 of which contained starch in excess of 2 per cent, and 3 contained coloring matter; 1 sample of milk examined for the sediment contained therein, which was found to be cornstarch; 9 samples of olive oil which contained cottonseed oil; 1 sample of scallops which contained added water; and 1 sample of shrimp which was decomposed.

There were 37 samples of drugs examined, of which 9 were adulterated; these consisted of 3 samples of camphorated oil deficient in the active ingredient, and 6 samples of citrate of magnesia solution which did not conform to the United States Pharmacopœia requirements.

The police departments submitted 21 samples of liquor for examination, all of which were above 1 per cent in alcohol. The police departments also submitted 22 samples of poisons for examination, 1 of which was gum opium, 8 of which were morphine in tablets and cubes, 7 were morphine in powder, 1 was morphine in liquid, 1 was morphine sulphate, and 4 samples were examined for poison with negative results.

There were 43 convictions for violations of the laws, $950 in fines being imposed. Thomas Brehaut, on 4 counts, and Frank Rogers of North Dartmouth, Manuel Mederos, Loring P. Ashley and Ezra Therrieu of Acushnet, Virgin S. Mederos and Henry Pare of New Bedford, John Veiera of Rochester, George A. Metropolis, on 2 counts, of Lowell, and Joseph Stanley of Andover, were all convicted for violation of the milk laws. William J. Cook of Newburyport, Michael Dakos of Peabody, George Gagalis, on 2 counts, and Louis Makris of Lowell, George Pacharos of Salem, and the New Bedford Public Market were all convicted for violation of the food laws. William Crossley of Fall River was convicted for false advertising. Jacob Winer of Salem was convicted for misbranding. The Diamond Chemical Company in Quincy, Emanuel Macaluso, Nicholas H. Nevler and George C. Wright, on 2 counts, of Boston were all convicted for violation of the drug laws. Nicholas H. Nevler of Boston appealed his case. Morris Atkins of Chelsea, Maurice Brogdonoff of Lowell, William J. Cook of Newburyport, William Crossley, Ovide Leveque, George Yankapouls, Damase Dufresne, Omer Durand, Louis Horwitz and David Prebluda of Fall River, Fairmount Creamery Company, M. F. Foley and Prior & Townsend, Inc., of Boston were convicted for violation of the cold-storage laws. The Fairmount Creamery Company appealed its case. J. Ellis Bradley and Exerode Blanchette of Charlton were convicted for violation of the slaughtering laws.

There were 21 confiscations made, consisting of 1,050 pounds of decomposed eggs, 174 pounds of decomposed beef, 12 pounds of tainted corned beef, 15 pounds of beef kidneys, 5 pounds of decomposed beef liver, 3,886 pounds of hogs' hearts, 74 pounds of immature veal, 18 pounds of tainted bologna, 6 pounds of tainted blood sausage, 5 pounds of tainted sausage, 50 pounds of decomposed miscellaneous meats, 70,525 pounds of decomposed black fish, 1,225 pounds of decomposed smelts, 656 pounds of decomposed and soaked scallops, and 3,475 pounds of soiled and dried out miscellaneous fish.

In accordance with the Acts of 1910, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Watered milk was obtained as follows: 3 samples, produced by Virgin S. Mederos, and 3 samples, produced by Henry Pare, both of New Bedford; 5 samples, produced by Frank Rogers of North Dartmouth; 19 samples, produced by Ezra Therrieu, and 5 samples, produced by Manuel Mederos, both of Fairhaven, 1 sample, produced by Loring P. Ashley of Acushnet; 3 samples, produced by John Burke of Rockland; 8 samples, produced by Antone Condez of Westport; 3 samples, produced by Charles J. Campbell, and 3 samples, produced by William C. Temple, both of Rutland; 7 samples, produced by Sidney Davis of Pottersville; and 12 samples, produced by Manuel Reposa of Somerset.

Clams which contained added water were obtained from the following: 1 sample from Mr. Lufkin of Essex; 1 sample from Mrs. J. A. Lord, 2 samples from J. J. Hull, 1 sample from T. R. Roberts, and 1 sample from E. E. McGregor, all of Ipswich; 1 sample from the Boston Norfolk Oyster Company, 1 sample from J. A. Stubbs, and 3 samples from D. Atwood Company, all of Boston; 2 samples from Joseph Duffey, and 1 sample from A. C. Gardner of Revere, 1 sample from Joseph W. Peckham, 2 samples from Harry Greene, 2 samples from Charles Fullerton, and 1 sample from Mrs. Fullerton, all of Winthrop; 1 sample from Phillip A. Smart, 1 sample from Daniel Hollis, and 1 sample from Ossie Quint, all of Lynn; 1 sample from A. P. Hilton and 1 sample from W. E. Hilton of Newburyport; 1 sample from William Stopford Company of Salem; 1 sample from Walter F. Lunkin of West Gloucester; 1 sample from Mr. Beaton of Beachmont; 2 samples from Leavitt Brothers and 1 sample from F. H. Snow of Pine Point, Me.; and 1 sample from Almon Harden of East Lamoine, Me.; 1 sample of maple sugar, which contained about 90 per cent of cane sugar, from Fred Christos of Lowell; 2 samples of sausage, which contained starch in excess of 2 per cent, from Brigg's Market, Methuen; and 1 sample from Herbert Seed of Lawrence; 2 samples of sausage, which contained coloring matter, from I. V. Veloso, and 1 sample from J. Gagnon, both of Fall River; 2 samples of rancid butter, from William A. Perry of New Bedford; 1 sample of misbranded cocoa, from the National Cocoa Mills of New York; 1 sample of decomposed eggs, from S. K. Ames of Winchester; 1 sample of watered oysters, from George T. Green, Jr., of Warren, R. I.; olive oil, which contained cottonseed oil, was obtained from the following: 1 sample from George Gaglis, and 1 sample from Louis Makris of Lowell; 1 sample from George Pacharos of Salem; 1 sample from Joseph Torilla of Worcester; 1 sample from Arthur Pichilis of Ipswich; 1 sample from Alpha Importing Company of New York City; and 1 sample from Frank F. Lee of New Bedford.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of February, 1919: 161,446 dozens of case eggs, 158,964 pounds of broken-out eggs, 1,260,861 pounds of butter, 753,738 pounds of poultry, 6,003 pounds of game, 16,800,912 pounds of fresh meat and fresh meat products, and 1,061,442 pounds of fresh food fish.

There were on hand on March 1, 1919, 28,979 dozens of case eggs, 293,794 pounds of broken-out eggs, and 3,066,534 pounds of butter.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of March, 1919: 533,875 dozens of case eggs, 151,971 pounds of broken-out eggs, 499,581 pounds of butter, 761,902 pounds of poultry, 2,043 pounds of game, 9,898,197 pounds of fresh meat and fresh meat products, and 1,307,801 pounds of fresh food fish.

There were on hand April 1, 1919, 342,109 dozens of case eggs, 212,919 pounds of broken-out eggs, and 743,317 pounds of butter.

## REPORT UPON THE WORK OF THE BACTERIOLOGICAL LABORATORY FOR MARCH AND APRIL, 1919.

The total number of examinations made was 4,436, divided as follows: diphtheria, 2,461, including 215 cultures for diagnosis which proved positive, and 334 taken for release, which proved positive; tuberculosis, 683 examinations, of which 167 were positive; Widal test for typhoid, 142 examinations, of which 27 were positive and 6 atypical; culture tests for typhoid bacilli, 38 examinations, with 7 positive; gonorrhœa, 984 examinations, with 100 positive; pneumonia, 101 examinations; and 20 miscellaneous examinations.

## RÉSUMÉ OF COMMUNICABLE DISEASES.

### March, 1919.

*General Prevalence.*

The total number of cases reported for the month of March was 9,743 as compared with 14,105 for March, 1918. The total for the current month includes 2,928 cases of influenza. The case rate per

100,000 for March, 1919, was 248.4 as compared with 325.6 for March, 1918.

A decrease in reported incidence of German measles and measles occurred from the corresponding month of a year ago.

Gonorrhœa with 1,010, and syphilis with 498, reported cases have reached the high-water mark of their existence as reported.

All other communicable diseases have shown approximately the same incidence as of last month, with the exception of chicken pox, measles, scarlet fever, whooping cough and pulmonary tuberculosis, which have shown slight increases.

There have been no outbreaks for the month, but the continued high incidence of scarlet fever in Gloucester and Salem speak for the need of greater activity upon the part of all, so that the number of "missed" or "unrecognized" cases be searched for and contact limited as much as possible.

*Diphtheria* was reported in 659 cases, a decrease from the preceding month, when 681 cases were reported.

*Measles.* — There were 778 cases of measles reported for the month, while during the corresponding month of 1918, 4,018 cases were reported; 778 is probably the lowest total ever reported for March.

Could we feel that this low incidence was due to preventive measures rather than to the fact that the high incidence of the past few years has taken the bulk of the non-immune, there would be just cause for elation.

*Influenza* showed a sharp decline from the preceding month; there were 2,928 cases reported this month as compared with 6,435 reported for February.

It is believed that the former total is somewhere near the usual seasonable incidence for influenza.

*Scarlet fever* increased from 562 for February to 719 for March, and, with the exception of the Northeastern District, cases were well scattered.

*Whooping cough* for the month of March showed an increase of 112 cases over the preceding month, there being 457 cases reported during March.

*Typhoid fever* showed nearly a 50 per cent decrease in incidence for March, there being 46 cases reported while 70 cases were reported in February.

*Lobar pneumonia* showed a decrease in number of reported cases; there were but 588 cases reported as compared with 663 for the previous month.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Boston, 1; Milford, 1; total, 2.

*Anthrax* was reported from Lynn, 1.

*Epidemic cerebrospinal meningitis* was reported from Arlington, 1; Boston, 7; Clinton, 1; Dedham, 1; Falmouth, 1; Greenfield, 1; Lawrence, 1; Lynn, 2; Maynard, 1; New Bedford, 1; Worcester, 1; Worthington, 1; Wrentham, 1; total, 20.

*Pellagra* was reported from Haverhill, 1; Melrose, 1; total, 2.

*Septic sore throat* was reported from Boston, 6; Brookline, 1; Chelsea, 3; Dedham, 1; Fall River, 2; Haverhill, 2; Melrose, 1; Natick, 1; Newburyport, 1; Peabody, 1; total, 19.

*Smallpox* was reported from Boston, 6; Everett, 1; total, 7.

*Trachoma* was reported from Boston, 1; Lowell, 1; Somerville, 1; total, 3.

*Trichinosis* was reported from Boston, 2.

## *Distribution.*

*All Communicable Diseases.*

| | March, 1919 | March, 1918 |
|---|---|---|
| Total cases, | 9,743 | 12,766 |
| Case rate per 100,000 population, | 248.4 | 325.6 |

*Certain Prevalent Diseases.*

| | March, 1919 | March, 1918 | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | Dedham, (1) 6<br>Danvers, (0) 11<br>Everett, (7) 17<br>Saugus, (0) 11<br>Lowell, (25) 36<br>Somerville, (25) 31<br>Worcester, (28) 40<br>Greenfield, (0) 17 |
| Total cases, | 659 | 747 | |
| Case rate per 100,000 population, | 16.3 | 19.1 | |
| Scarlet fever: — | | | Dighton, (0) 10<br>Mansfield, (0) 5<br>Sharon, (0) 4<br>Gloucester, (1) 16<br>Melrose, (2) 9<br>Revere, (3) 15<br>Salem, (4) 43<br>Saugus, (1) 8<br>Wakefield, (2) 11<br>Lowell, (8) 18<br>Holyoke, (13) 27 |
| Total cases, | 719 | 537 | |
| Case rate per 100,000 population, | 17.7 | 13.7 | |
| Measles: — | | | Fall River, (26) 235<br>Taunton, (3) 18<br>Wareham, (0) 15<br>Lynn, (7) 50<br>Worcester, (28) 126<br>Leominster, (2) 50<br>Lunenburg, (0) 29 |
| Total cases, | 778 | 4,018 | |
| Case rate per 100,000 population, | 19.3 | 102.5 | |
| Typhoid fever: — | | | |
| Total cases, | 46 | 41 | |
| Case rate per 100,000 population, | 1.14 | 1.0 | |
| Whooping cough: — | | | Danvers, (3) 36<br>Belmont, (0) 20<br>Woburn, (0) 18<br>Holden, (0) 11<br>Attleboro, (1) 13 |
| Total cases, | 457 | 759 | |
| Case rate per 100,000 population, | 11.3 | 19.4 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, | 686 | 829 | |
| Case rate per 100,000 population, | 17.4 | 21.1 | |
| Tuberculosis, other forms: — | | | |
| Total cases, | 63 | 86 | |
| Case rate per 100,000 population, | 1.6 | 2.2 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## APRIL, 1919.

### *General Prevalence.*

April's total of 7,726 reported cases, including 1,069 cases of influenza, shows a marked decrease from the corresponding month of 1918, when 14,752 cases were reported, the case rate per 100,000 being 193.5 and 376.2, respectively.

The decrease is accounted for by the fact that there have been no outbreaks of any size during the month, and, with the exception of measles, no disease has even approached its median endemic index for the month.

*Diphtheria* was reported in 532 instances, scattered over the entire State, the case rate being 13.3 per 100,000.

*Measles* reached the total of 1,046 cases. Fall River with 247 cases, Worcester with 182, and Lynn with 63 showed the greatest incidence.

*Influenza* continues to decline. There were but 1,069 cases reported for the month as compared with 2,928 for the preceding month.

*Typhoid fever* was reported in 44 instances, cases being reported from all sections of the State with no outbreaks apparent. With health officers viewing and treating each case as the possible beginning of an outbreak, it appears that our control and prevention are in a reasonably efficient state.

*Lobar pneumonia* continues to be reported in decreasing numbers; only 466 cases were reported during April.

*Venereal Diseases.* — Gonorrhœa and syphilis still continue to be reported in goodly numbers, showing that all are co-operating in handling this serious condition. Gonorrhœa was reported in 818 instances and syphilis in 419.

*Smallpox* was reported in 6 instances, — 3 cases in Boston, 2 of unknown origin, and 1 a direct contact with a case from the schooner "Flavilla." Two cases were reported from Indian Orchard, due to contact with a case from out of the State; one from Gloucester, on the schooner "Hesperus," contracted by contact with a patient from the schooner "Flavilla." No deaths have attended these cases to date.

### *Rare Diseases.*

*Actinomycosis* was reported from Boston, 1.

*Anterior poliomyelitis* was reported from Abington, 1; Boston, 1; Lawrence, 1; Lowell, 1; total, 4.

*Anthrax* was reported from Woburn, 1.

*Dog bite requiring anti-rabic treatment* was reported from Attleboro, 1; Dighton, 2; Lowell, 1; Middleborough, 1; Somerset, 1; Worcester, 3; total, 9.

*Dysentery* was reported from Camp Devens, 1.

*Epidemic cerebrospinal meningitis* was reported from Beverly, 1; Boston, 13; Brockton, 1; Camp Devens, 3; Chelsea, 1; Everett, 2; Gardner, 1; Hudson, 1; Malden, 1; Newton, 1; Northborough, 1; Somerville, 2; Sudbury, 1; Watertown, 1; Worcester, 2; Worthington, 1; total, 33.

*Malaria* was reported from Boston, 2; Wayland, 1; total, 3.

*Septic sore throat* was reported from Arlington, 1; Boston, 6; Fitchburg, 1; Haverhill, 1; Lynn, 1; Medford, 2; Newburyport, 5; total, 17.

*Smallpox* was reported from Boston, 3; Gloucester, 1; Springfield, 2; total, 6.

*Tetanus* was reported from Braintree, 1; New Bedford, 2; Quincy, 1; total, 4.

*Trachoma* was reported from Boston, 3; Cambridge, 1; Chelsea, 1; Fall River, 1; Fitchburg, 1; Lawrence, 1; Norwood, 1; Worcester, 1; total, 10.

## *Distribution.*

### *All Communicable Diseases.*

| | April, 1919 | April, 1918 |
|---|---|---|
| Total cases, | 7,726 | 14,752 |
| Case rate per 100,000 population, | 193.5 | 376.2 |

### *Certain Prevalent Diseases.*

| | April, 1919 | April, 1918 | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | Wareham, (0) 4<br>Salem, (4) 18<br>Saugus, (0) 12<br>Lowell, (8) 30<br>Orange, (0) 5<br>Greenfield, (0) 9 |
| Total cases, | 532 | 667 | |
| Case rate per 100,000 population, | 13.3 | 17.0 | |
| Scarlet fever: — | | | Bridgewater, (2) 8<br>Brockton, (10) 22<br>Foxborough, (1) 10<br>Everett, (8) 12<br>Gloucester, (1) 15<br>Revere, (2) 13<br>Salem, (5) 27<br>Lowell, (8) 22<br>Grafton, (0) 10<br>Milford, (3) 15<br>Westfield, (3) 15 |
| Total cases, | 715 | 626 | |
| Case rate per 100,000 population, | 17.9 | 16.0 | |
| Measles: — | | | Fall River, (23) 247<br>Taunton, (3) 63<br>Wareham, (0) 21<br>Lynn, (7) 108<br>Charlton, (0) 16<br>Worcester, (19) 182<br>Leominster, (0) 20<br>Templeton, (0) 24 |
| Total cases, | 1,046 | 5,210 | |
| Case rate per 100,000 population, | 26.2 | 132.9 | |
| Mumps: — | | | |
| Total cases, | 346 | 794 | Walpole, (-) 18<br>Templeton, (-) 41 |
| Case rate per 100,000 population, | 8.7 | 20.2 | |
| Typhoid fever: — | | | |
| Total cases, | 44 | 53 | |
| Case rate per 100,000 population, | 1.1 | 1.4 | |
| Whooping cough: — | | | |
| Total cases, | 379 | 855 | Haverhill, (4) 62 |
| Case rate per 100,000 population, | 9.5 | 21.8 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, | 731 | 793 | |
| Case rate per 100,000 population, | 18.3 | 20.2 | |
| Tuberculosis, other forms: — | | | |
| Total cases, | 74 | 87 | |
| Case rate per 100,000 population, | 1.85 | 2.2 | |
| Gonorrhœa: — | | | |
| Total cases, | 818 | 982 | |
| Case rate per 100,000 population, | 20.5 | 24.6 | |
| Syphilis: — | | | |
| Total cases, | 419 | 376 | |
| Case rate per 100,000 population, | 10.5 | 9.5 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

# INTERSTATE RECIPROCAL NOTIFICATION IN APRIL.

| Disease and Locality of Notification. | Health Authority referred to — | Why referred. |
|---|---|---|
| Smallpox, Indian Orchard, . | State Board of Health, Augusta, Me. | Patient came from Lewiston, Me., April 24. Onset of disease, April 25. |

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, . . . . . | 3,991,969 | 376 | – | 739 | 57 | 24 | 18 | 29 | – | 1,096 | 640 | 509 | 10 |
| 2 | Cities over 200,000. | | | | | | | | | | | | | |
| 3 | Boston, . . . . . . | 808,442 | 81 | – | 265 | 15 | 4 | 6 | 5 | – | 366 | 113 | 34 | 1 |
| 4 | Cities, 150,000–200,000. | | | | | | | | | | | | | |
| 5 | Worcester, . . . . . . | 176,761 | 5 | – | 35 | 1 | 2 | 2 | – | – | 47 | 50 | 49 | – |
| 6 | Cities, 100,000–150,000. | *687,463* | *51* | – | *114* | *10* | *5* | *2* | *6* | – | *158* | *106* | *119* | *7* |
| 7 | Fall River, . . . . . . | 129,416 | 10 | – | 22 | 2 | 1 | – | 2 | – | 31 | 20 | 73 | 5 |
| 8 | New Bedford, . . . . . | 120,438 | 4 | – | 15 | 2 | – | 1 | – | – | 10 | 8 | 2 | – |
| 9 | Springfield, . . . . . . | 114,792 | 12 | – | 15 | 1 | 1 | 1 | 4 | – | 51 | 16 | 1 | – |
| 10 | Cambridge, . . . . . | 112,176 | 10 | – | 15 | 1 | 1 | – | – | – | 26 | 29 | 4 | – |
| 11 | Lowell, . . . . . . . | 109,396 | 5 | – | 20 | 3 | 1 | – | – | – | 30 | 15 | 34 | 2 |
| 12 | Lynn, . . . . . . . | 101,245 | 10 | – | 27 | 1 | 1 | – | – | – | 10 | 18 | 5 | – |
| 13 | Cities, 50 000–100,000. | *478,422* | *55* | – | *85* | *9* | *3* | *2* | *4* | – | *144* | *76* | *9* | – |
| 14 | Somerville, . . . . . . | 94,950 | 9 | – | 25 | – | – | – | 1 | – | 15 | 12 | 1 | – |
| 15 | Lawrence, . . . . . . | 93,933 | – | – | 16 | 5 | 1 | 1 | – | – | 17 | 15 | 1 | – |
| 16 | Brockton, . . . . . . | 66,824 | 19 | – | 6 | 1 | – | – | – | – | 2 | 7 | – | – |
| 17 | Holyoke, . . . . . . | 63,413 | 2 | – | 13 | 3 | 1 | – | – | – | 8 | 5 | 2 | – |
| 18 | Haverhill, . . . . . . | 53,940 | 12 | – | 10 | – | 1 | – | 3 | – | 83 | 19 | – | – |
| 19 | Malden, . . . . . . | 52,699 | – | – | 10 | – | – | 1 | – | – | 11 | 9 | 3 | – |
| 20 | Chelsea, . . . . . . | 52,663 | 13 | – | 5 | – | – | – | – | – | 8 | 9 | 2 | – |
| 21 | Cities and Towns, 25,000–50,000. | *500,608* | *57* | – | *83* | *9* | *5* | *2* | *4* | – | *94* | *86* | *66* | – |
| 22 | Quincy, . . . . . . | 47,433 | 5 | – | 13 | 1 | – | – | – | – | 7 | 7 | – | – |
| 23 | Pittsfield, . . . . . . | 45,907 | 1 | – | – | – | 1 | 1 | – | – | 3 | 8 | 1 | – |
| 24 | Newton, . . . . . . | 45,895 | 12 | – | 11 | – | – | – | – | – | 2 | 3 | 1 | – |
| 25 | Salem, . . . . . . . | 42,292 | 18 | – | 12 | 1 | 1 | 1 | – | – | 15 | 12 | 1 | – |
| 26 | Everett, . . . . . . | 41,282 | 3 | – | 10 | 1 | – | – | – | – | 17 | 14 | 2 | – |
| 27 | Fitchburg, . . . . . . | 41,196 | 2 | – | 10 | 3 | 1 | – | – | – | 19 | 12 | 5 | – |
| 28 | Brookline, . . . . . . | 38,287 | 3 | – | 5 | 1 | – | – | 1 | – | 9 | 3 | 1 | – |
| 29 | Taunton, . . . . . . | 37,761 | 3 | – | 1 | – | – | – | 2 | – | 3 | 12 | 54 | – |
| 30 | Medford, . . . . . . | 36,702 | 6 | – | 5 | – | 1 | – | – | – | 1 | 8 | 1 | – |
| 31 | Chicopee, . . . . . . | 34,124 | – | – | 9 | 1 | – | – | – | – | - | 1 | – | – |
| 32 | Waltham, . . . . . . | 32,107 | 3 | – | – | – | 1 | – | – | – | 5 | 2 | – | – |
| 33 | Revere, . . . . . . | 31,035 | – | – | 6 | 1 | – | – | – | – | 2 | 3 | – | – |
| 34 | Beverly, . . . . . . | 26,587 | 1 | – | 1 | – | – | – | 1 | – | 11 | 1 | – | – |
| 35 | Cities and Towns, 10,000–25,000. | *597,915* | *49* | – | *107* | *10* | *1* | *2* | *6* | – | *118* | *87* | *178* | *1* |
| 36 | Gloucester, . . . . . . | 24,545 | 3 | – | 8 | – | – | – | – | – | 8 | 2 | 1 | – |
| 37 | Northampton, . . . . . | 23,526 | 2 | – | 4 | – | – | – | – | – | 2 | 2 | 1 | – |
| 38 | North Adams, . . . . . | 22,048 | – | – | 1 | 1 | – | – | – | – | 2 | 2 | – | – |
| 39 | Peabody, . . . . . . | 21,070 | 2 | – | 5 | 1 | – | – | – | – | 4 | 5 | 3 | – |
| 40 | Westfield, . . . . . . | 20,402 | 1 | – | 22 | 4 | – | – | – | – | 3 | 2 | 1 | – |
| 41 | Attleboro, . . . . . . | 20,386 | – | – | 1 | – | – | – | – | – | 6 | 5 | – | – |
| 42 | Watertown, . . . . . . | 19,579 | – | – | 6 | – | – | – | 1 | – | 6 | 4 | – | – |
| 43 | Framingham, . . . . . | 18,310 | 1 | – | – | – | – | – | – | – | 2 | 4 | – | – |
| 44 | Arlington, . . . . . . | 18,004 | 2 | – | 4 | – | – | – | – | – | – | 3 | – | – |
| 45 | Melrose, . . . . . . | 17,860 | – | – | – | – | – | – | – | – | 8 | 2 | – | – |
| 46 | Gardner, . . . . . . | 17,786 | 1 | – | 3 | – | – | 1 | – | – | 3 | 6 | – | – |
| 47 | Leominster, . . . . . . | 17,701 | 6 | – | – | – | – | – | – | – | 8 | 10 | 154 | 1 |
| 48 | Woburn, . . . . . . | 17,336 | – | – | – | – | – | – | – | – | 2 | – | – | – |
| 49 | Methuen, . . . . . . | 16,161 | – | – | – | – | – | – | – | – | 1 | 3 | – | – |
| 50 | Marlborough, . . . . . | 15,814 | 2 | – | 3 | – | – | – | – | – | – | – | – | – |
| 51 | Newburyport, . . . . . | 15,614 | 10 | – | 3 | – | – | – | – | – | 6 | 2 | – | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Com-
and correction, these deaths, while approximately correct, are not absolutely complete.

## TO THE PUBLIC HEALTH,[1] JANUARY, 1919.

| 38A | | 38B | | 75A | | 19C | | 7 | | 28-29 | | 30-35 | | 1 | | 38C | | 37 | | 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Trachoma. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 92 | – | 32 | – | 4 | – | 165 | – | 563 | 11 | 633 | 489 | 44 | 64 | 55 | 11 | 608 | 1 | 282 | 20 | 398 | 33 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 41 | – | 9 | – | 4 | – | 29 | – | 135 | 5 | 217 | 82 | 16 | 20 | 9 | 2 | 279 | – | 128 | 13 | 79 | 3 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 6 | – | 4 | – | – | – | 2 | – | 13 | 1 | 23 | 17 | 1 | 5 | 1 | – | 32 | – | 27 | – | 11 | – | 5 |
| *26* | – | *9* | – | – | – | *13* | – | *104* | *1* | *133* | *102* | *10* | *16* | *9* | *2* | *87* | – | *22* | *1* | *60* | *9* | 6 |
| 6 | – | 4 | – | – | – | 1 | – | 10 | – | 29 | 19 | 1 | 3 | 2 | – | 19 | – | 6 | 1 | 21 | 3 | 7 |
| 9 | – | 3 | – | – | – | 2 | – | 5 | – | 43 | 21 | 3 | 4 | 4 | – | 19 | – | 2 | – | 7 | – | 8 |
| 1 | – | – | – | – | – | 1 | – | 28 | – | 13 | 11 | 2 | 1 | – | – | 14 | – | 6 | – | 4 | 1 | 9 |
| 1 | – | 1 | – | – | – | 4 | – | 13 | – | 18 | 24 | 1 | 2 | 1 | 1 | 8 | – | 3 | – | 7 | 1 | 10 |
| 8 | – | – | – | – | – | 1 | – | 25 | – | 20 | 13 | 2 | 5 | – | – | 16 | – | 1 | – | 8 | 1 | 11 |
| 1 | – | 1 | – | – | – | 4 | – | 23 | 1 | 10 | 14 | 1 | 1 | 2 | 1 | 11 | – | 4 | – | 13 | 3 | 12 |
| *9* | – | *5* | – | – | – | *8* | – | *65* | *1* | *60* | *62* | *8* | *3* | *16* | *3* | *54* | – | *18* | – | *45* | *5* | 13 |
| 1 | – | 1 | – | – | – | 1 | – | 17 | 1 | 9 | 14 | 2 | – | 2 | – | 5 | – | 1 | – | 5 | – | 14 |
| 1 | – | 1 | – | – | – | 3 | – | 4 | – | 15 | 17 | 1 | 1 | 12 | 1 | 8 | – | 4 | – | 4 | 2 | 15 |
| 2 | – | – | – | – | – | – | – | 10 | – | 10 | 5 | 2 | 1 | – | – | 10 | – | 1 | – | – | – | 16 |
| – | – | – | – | – | – | 1 | – | 17 | – | 9 | 5 | – | – | – | – | 2 | – | 1 | – | – | – | 17 |
| 2 | – | – | – | – | – | 2 | – | 2 | – | 9 | 8 | – | – | 2 | 2 | 23 | – | 9 | – | 26 | 1 | 18 |
| – | – | – | – | – | – | 1 | – | 13 | – | 3 | 4 | 1 | – | – | – | 2 | – | – | – | 2 | 1 | 19 |
| 3 | – | 3 | – | – | – | – | – | 2 | – | 5 | 9 | 2 | 1 | – | – | 4 | – | 2 | – | 8 | 1 | 20 |
| *6* | – | *1* | – | – | – | *11* | – | *62* | *1* | *64* | *48* | *3* | *5* | *5* | – | *17* | – | *3* | *1* | *33* | *4* | 21 |
| – | – | – | – | – | – | 1 | – | 6 | – | 4 | 3 | 1 | – | 1 | – | 1 | – | – | – | 3 | 2 | 22 |
| – | – | – | – | – | – | 4 | – | 4 | – | 14 | 8 | 1 | 1 | – | – | 2 | – | – | – | – | – | 23 |
| 2 | – | – | – | – | – | 2 | – | 1 | – | 6 | 3 | – | – | 4 | – | 3 | – | – | 1 | 2 | – | 24 |
| 2 | – | – | – | – | – | 2 | – | 14 | – | 3 | 7 | – | – | – | – | 2 | – | – | – | 9 | – | 25 |
| 1 | – | 1 | – | – | – | – | – | 11 | – | 10 | – | – | – | – | – | – | – | – | – | – | – | 26 |
| – | – | – | – | – | – | 1 | – | 2 | – | 3 | 4 | – | – | – | – | 2 | – | – | – | – | – | 27 |
| 1 | – | – | – | – | – | – | – | 3 | – | 4 | 1 | – | – | – | – | 1 | – | – | – | 7 | – | 28 |
| – | – | – | – | – | – | – | – | 3 | 1 | 7 | 9 | 1 | 2 | – | – | 3 | – | – | – | 7 | 1 | 29 |
| – | – | – | – | – | – | – | – | 3 | – | 2 | 6 | – | 1 | – | – | – | – | – | – | 2 | – | 30 |
| – | – | – | – | – | – | – | – | – | – | 4 | 3 | – | – | – | – | – | – | – | – | – | – | 31 |
| – | – | – | – | – | – | – | – | 9 | – | 4 | 2 | – | 1 | – | – | – | – | – | – | – | 1 | 32 |
| – | – | – | – | – | – | – | – | 6 | – | 2 | 2 | – | – | – | – | 1 | – | 1 | – | – | – | 33 |
| – | – | – | – | – | – | 1 | – | – | – | 1 | – | – | – | – | – | 2 | – | 2 | – | 3 | – | 34 |
| *3* | – | *3* | – | – | – | *18* | – | *105* | *2* | *60* | *74* | *4* | *10* | *6* | *1* | *41* | *1* | *8* | *4* | *96* | *7* | 35 |
| – | – | – | – | – | – | – | – | 23 | 1 | 7 | 2 | 1 | – | 2 | – | 2 | – | – | – | 2 | – | 36 |
| 1 | – | – | – | – | – | 1 | – | 4 | – | 1 | 5 | – | 1 | – | – | – | – | – | 4 | – | – | 37 |
| – | – | – | – | – | – | 1 | – | 1 | – | 2 | 3 | – | 1 | – | – | 3 | – | – | – | – | – | 38 |
| – | – | – | – | – | – | – | – | – | – | 2 | 6 | – | – | – | – | – | – | – | – | – | – | 39 |
| – | – | – | – | – | – | 1 | – | 17 | – | 1 | 16 | – | – | – | – | 4 | – | 1 | – | 1 | 1 | 40 |
| – | – | – | – | – | – | – | – | 4 | – | – | – | – | – | – | – | – | – | 1 | – | 10 | – | 41 |
| 1 | – | – | – | – | – | – | – | 2 | – | 3 | 1 | 2 | 2 | – | – | 1 | – | – | – | 1 | – | 42 |
| – | – | – | – | – | – | 2 | – | 1 | – | 3 | 1 | – | – | 1 | – | – | – | – | – | 5 | – | 43 |
| – | – | – | – | – | – | – | – | 7 | – | 1 | 2 | – | – | – | – | 2 | – | 1 | – | 7 | 1 | 44 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | 1 | – | – | 2 | – | – | – | – | – | 45 |
| – | – | – | – | – | – | 1 | – | 2 | 1 | 3 | 2 | – | 1 | – | – | – | – | – | – | – | – | 46 |
| – | – | – | – | – | – | – | – | 1 | – | 3 | 1 | – | 2 | 1 | 1 | – | 1 | – | – | 10 | – | 47 |
| – | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | 2 | – | – | – | 3 | 1 | 48 |
| – | – | – | – | – | – | – | – | 2 | – | 3 | 2 | – | – | – | – | – | – | – | – | 6 | – | 49 |
| – | – | – | – | – | – | – | – | 1 | – | 3 | 1 | – | – | – | – | – | – | – | – | – | – | 50 |
| – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | 1 | 51 |

monwealth. Owing to the delay by physicians in returning death certificates sent them for addition

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | CITIES AND TOWNS GROUPED IN ORDER OF POPULATION. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | – | – | 2 | – | 1 | – | – | – | 1 | 1 | 4 | – |
| 53 | Winthrop, | 14,968 | 2 | – | 3 | – | – | 1 | 3 | – | 3 | 3 | 1 | – |
| 54 | Weymouth, | 14,874 | – | – | 3 | – | – | – | – | – | 3 | 2 | 2 | – |
| 55 | Greenfield. | 14,466 | – | – | 3 | – | – | – | 1 | – | 1 | 1 | 7 | – |
| 56 | Milford, | 14,214 | – | – | – | – | – | – | – | – | 6 | 4 | – | – |
| 57 | Wakefield, | 13,939 | – | – | 9 | – | – | – | – | – | 8 | 4 | – | – |
| 58 | Plymouth, | 13,587 | – | – | 3 | 1 | – | – | – | – | – | 2 | 1 | – |
| 59 | Norwood, | 13,472 | – | – | – | – | – | – | – | – | – | 1 | – | – |
| 60 | Webster, | 13,453 | 7 | – | 7 | – | – | – | – | – | 4 | 1 | 2 | – |
| 61 | Adams, | 13,378 | – | – | 4 | – | – | – | – | – | 2 | 2 | – | – |
| 62 | Clinton, | 13,289 | – | – | – | – | – | – | – | – | 11 | 3 | – | – |
| 63 | West Springfield, | 13,119 | – | – | 2 | 1 | – | – | – | – | – | – | – | – |
| 64 | Danvers, | 12,663 | 3 | – | 4 | – | – | – | – | – | 2 | 1 | – | – |
| 65 | Dedham, | 12,524 | 7 | – | – | 1 | – | – | – | – | – | – | – | – |
| 66 | Natick, | 12,175 | – | – | 1 | – | – | – | – | – | 1 | 1 | 1 | – |
| 67 | Saugus, | 12,061 | – | – | 2 | – | – | – | – | – | – | 1 | – | – |
| 68 | Easthampton, | 10,956 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 69 | Athol, | 10,831 | – | – | – | – | – | – | – | – | – | – | – | – |
| 70 | Bridgewater, | 10,807 | – | – | – | – | – | – | – | – | – | – | – | – |
| 71 | Winchester, | 10,590 | – | – | – | – | – | – | 1 | – | 7 | 2 | – | – |
| 72 | Braintree, | 10,417 | – | – | 3 | 1 | – | – | – | – | 2 | 1 | – | – |
| 73 | Belmont, | 10,219 | – | – | – | – | – | – | – | – | 4 | 2 | – | – |
| 74 | Palmer, | 10,191 | – | – | – | – | – | – | – | – | 2 | 3 | – | – |
| 75 | TOWNS, 5,000–10,000. | *342,000* | *51* | – | *20* | *1* | *1* | *1* | *3* | – | *88* | *63* | *10* | – |
| 76 | TOWNS, 2,500–5,000. | *188,565* | *12* | – | *11* | – | *2* | *1* | – | – | *14* | *19* | *25* | – |
| 77 | TOWNS UNDER 2,500. | *211,793* | *12* | – | *11* | *1* | – | – | *1* | – | *49* | *35* | *15* | *1* |
| 78 | STATE INFIRMARY, | – | – | – | *6* | *1* | – | – | – | – | – | *3* | – | – |
| 79 | CAMP DEVENS, | – | *3* | – | *2* | – | *1* | – | – | – | *18* | *2* | *4* | – |

In addition to the above there occurred 4 cases of anterior poliomyelitis, 1 in Athol, 1 in Boston, 2 cases of dog bite (requiring anti-rabic treatment), 1 in Cambridge and 1 in Lawrence; 2 cases of 19 cases of septic sore throat, 10 in Boston, 1 in Brockton, 1 in Holyoke, 1 in Lowell, 2 in Medford, 1 in Adams and 1 in Cambridge.

TO THE PUBLIC HEALTH — Concluded.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28–29 Tuberculosis, Pulmonary. | | 30–35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| – | – | – | – | – | – | – | – | 1 | – | 1 | – | – | – | – | – | 1 | – | – | – | 1 | – | 52 |
| – | – | – | – | – | – | 4 | – | 7 | – | 3 | 1 | – | – | – | – | 2 | – | – | – | – | – | 53 |
| – | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | – | – | – | – | – | – | 54 |
| – | – | – | – | – | – | 3 | – | 5 | – | 2 | 1 | – | – | – | – | – | – | – | – | 2 | 1 | 55 |
| – | – | – | – | – | – | – | – | – | – | 2 | 4 | 1 | 1 | – | – | – | – | – | – | – | – | 56 |
| – | – | – | – | – | – | 5 | – | – | – | 1 | 2 | – | – | – | – | – | – | – | – | – | – | 57 |
| – | – | – | – | – | – | – | – | – | – | 2 | 2 | – | 1 | – | – | 1 | – | – | – | – | – | 58 |
| – | – | – | – | – | – | – | – | 5 | – | 1 | 3 | – | – | – | – | 1 | – | – | – | – | – | 59 |
| – | – | 1 | – | – | – | – | – | – | – | 2 | – | – | – | – | – | 1 | – | 1 | – | – | – | 60 |
| – | – | – | – | – | – | – | – | – | – | 3 | 1 | – | – | – | – | – | – | – | – | – | – | 61 |
| – | – | 2 | – | – | – | – | – | 1 | – | 2 | 5 | – | – | – | – | 2 | – | – | – | – | 1 | 62 |
| – | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | – | – | 1 | – | – | – | 63 |
| – | – | – | – | – | – | – | – | 3 | – | 2 | 4 | – | – | – | – | 6 | – | 1 | – | 8 | – | 64 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | 1 | – | 1 | – | 12 | – | 65 |
| – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | 1 | – | – | – | – | – | – | – | 66 |
| – | – | – | – | – | – | – | – | 3 | – | – | 1 | – | – | 1 | – | – | – | – | – | 2 | – | 67 |
| – | – | – | – | – | – | – | – | 1 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | 68 |
| – | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | – | – | – | – | – | – | 69 |
| – | – | – | – | – | – | – | – | 2 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | 70 |
| 1 | – | – | – | – | – | – | – | 1 | – | 1 | – | – | – | – | – | 1 | – | – | – | 1 | – | 71 |
| – | – | – | – | – | – | – | – | – | – | 2 | 2 | – | – | – | – | 6 | – | – | – | – | – | 72 |
| – | – | – | – | – | – | – | – | 2 | – | 1 | 1 | – | – | – | – | 2 | – | 1 | – | 25 | 1 | 73 |
| – | – | – | – | – | – | – | – | 3 | – | – | 1 | – | – | – | – | – | – | – | – | – | – | 74 |
| *1* | – | *1* | – | – | – | *2* | – | *43* | – | *32* | *28* | *1* | *3* | *3* | – | *11* | – | *1* | – | *54* | *3* | 75 |
| – | – | – | – | – | – | *13* | – | *14* | – | *15* | *14* | *1* | *2* | *2* | *1* | *6* | – | *3* | – | *8* | *1* | 76 |
| – | – | – | – | – | – | *3* | – | *17* | – | *15* | *45* | – | – | *4* | *2* | *8* | – | *1* | – | *12* | *1* | 77 |
| – | – | – | – | – | – | – | – | – | – | *14* | *16* | – | – | – | – | *22* | – | *8* | *1* | – | – | 78 |
| – | – | – | – | – | – | *66* | – | *5* | – | – | *1* | – | – | – | – | *51* | – | *63* | – | – | – | 79 |

1 in Gloucester and 1 in Springfield, with 3 deaths, 1 in Athol, 1 in Boston, and 1 in Gloucester; dysentery, 1 in New Bedford and 1 in Topsfield, with 1 death in Fall River; 1 case of pellagra in Boston; Newburyport, 2 in Somerville and 1 in Wellesley with 1 death in Brockton; 2 deaths from tetanus, 1 in

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,991,969 | 446 | – | 681 | **68** | 23 | **17** | 34 | – | 663 | **354** | 452 | **6** |
| 2 | Cities over 200,000. | | | | | | | | | | | | | |
| 3 | Boston, | 808,442 | 139 | – | 217 | **20** | 3 | **5** | 5 | – | 235 | **97** | 42 | – |
| 4 | Cities, 150,000–200,000. | | | | | | | | | | | | | |
| 5 | Worcester, | 176,761 | 3 | – | 31 | **6** | 1 | **2** | 2 | – | 23 | **27** | 29 | **1** |
| 6 | Cities, 100,000–150,000. | *687,463* | *74* | – | *98* | *12* | *3* | *2* | *9* | – | *118* | *53* | *140* | *3* |
| 7 | Fall River, | 129,416 | 20 | – | 24 | **4** | 1 | **1** | 1 | – | 22 | **7** | 119 | **3** |
| 8 | New Bedford, | 120,438 | 5 | – | 14 | **3** | – | – | 2 | – | 6 | **1** | 4 | – |
| 9 | Springfield, | 114,792 | 14 | – | 5 | **1** | 1 | – | 1 | – | 64 | **22** | 3 | – |
| 10 | Cambridge, | 112,176 | 9 | – | 14 | – | – | – | – | – | 8 | **4** | 5 | – |
| 11 | Lowell, | 109,396 | 10 | – | 17 | **1** | – | – | 2 | – | 6 | **10** | 6 | – |
| 12 | Lynn, | 101,245 | 16 | – | 24 | **3** | 1 | **1** | 3 | – | 12 | **9** | 3 | – |
| 13 | Cities, 50,000–100,000. | *478,422* | *50* | – | *93* | *12* | *5* | *3* | *4* | – | *84* | *41* | *21* | – |
| 14 | Somerville, | 94,950 | 10 | – | 41 | **3** | 1 | **2** | – | – | 11 | **5** | 17 | – |
| 15 | Lawrence, | 93,933 | – | – | 6 | **2** | 2 | **1** | – | – | 8 | **4** | – | – |
| 16 | Brockton, | 66,824 | 15 | – | 6 | – | 1 | – | 1 | – | 5 | **2** | – | – |
| 17 | Holyoke, | 63,413 | 3 | – | 15 | **3** | – | – | – | – | 8 | **7** | 1 | – |
| 18 | Haverhill, | 53,940 | 12 | – | 17 | **2** | – | – | 1 | – | 26 | **8** | – | – |
| 19 | Malden, | 52,699 | – | – | 4 | **1** | 1 | – | 2 | – | 6 | **2** | – | – |
| 20 | Chelsea, | 52,663 | 10 | – | 4 | **1** | – | – | – | – | 20 | **13** | 3 | – |
| 21 | Cities and Towns, 25,000–50,000. | *500,608* | *49* | – | *80* | *8* | *1* | *1* | *1* | – | *64* | *49* | *47* | *2* |
| 22 | Quincy, | 47,433 | 4 | – | 4 | – | – | – | – | – | 7 | **4** | 2 | – |
| 23 | Pittsfield, | 45,907 | 2 | – | 5 | – | – | – | – | – | 3 | **1** | – | – |
| 24 | Newton, | 45,895 | 6 | – | 2 | – | 1 | **1** | – | – | 5 | **4** | 4 | – |
| 25 | Salem, | 42,292 | 3 | – | 22 | **1** | – | – | – | – | 15 | **3** | 1 | – |
| 26 | Everett, | 41,282 | 4 | – | 17 | **3** | – | – | – | – | 12 | **3** | 2 | – |
| 27 | Fitchburg, | 41,196 | 1 | – | 10 | **2** | – | – | – | – | 5 | **3** | 1 | – |
| 28 | Brookline, | 38,287 | 23 | – | 4 | – | – | – | 1 | – | 6 | **4** | 4 | – |
| 29 | Taunton, | 37,761 | 3 | – | 3 | – | – | – | – | – | 4 | **8** | 32 | **2** |
| 30 | Medford, | 36,702 | 2 | – | 2 | **1** | – | – | – | – | 1 | **3** | – | – |
| 31 | Chicopee, | 34,124 | – | – | 2 | **1** | – | – | – | – | – | **3** | – | – |
| 32 | Waltham, | 32,107 | 1 | – | 2 | – | – | – | – | – | 2 | **5** | – | – |
| 33 | Revere, | 31,035 | – | – | 7 | – | – | – | – | – | – | **3** | – | – |
| 34 | Beverly, | 26,587 | – | – | – | – | – | – | – | – | 4 | **5** | 1 | – |
| 35 | Cities and Towns, 10,000–25,000. | *597,915* | *66* | – | *98* | *6* | *6* | *2* | *10* | – | *68* | *25* | *123* | – |
| 36 | Gloucester, | 24,545 | 4 | – | 1 | – | – | – | – | – | 4 | **1** | 2 | – |
| 37 | Northampton, | 23,526 | 2 | – | 11 | **2** | – | – | – | – | 1 | **1** | 2 | – |
| 38 | North Adams, | 22,048 | 1 | – | 1 | – | – | – | – | – | 3 | **1** | – | – |
| 39 | Peabody, | 21,070 | 1 | – | 1 | **1** | 1 | – | – | – | 1 | **1** | 1 | – |
| 40 | Westfield, | 20,402 | 4 | – | 11 | **2** | – | – | – | – | 3 | – | – | – |
| 41 | Attleboro, | 20,386 | – | – | 2 | – | – | – | – | – | 1 | **2** | 2 | – |
| 42 | Watertown, | 19,579 | 1 | – | 4 | – | – | – | 1 | – | 4 | **1** | – | – |
| 43 | Framingham, | 18,310 | – | – | 2 | – | – | – | – | – | – | **1** | – | – |
| 44 | Arlington, | 18,004 | 4 | – | 3 | – | – | – | – | – | 1 | **2** | 1 | – |
| 45 | Melrose, | 17,860 | – | – | 6 | – | – | – | – | – | 2 | – | 1 | – |
| 46 | Gardner, | 17,786 | – | – | – | – | – | – | 1 | – | 2 | **2** | – | – |
| 47 | Leominster, | 17,701 | 7 | – | 1 | – | – | – | 1 | – | 6 | – | 107 | – |
| 48 | Woburn, | 17,336 | 2 | – | 1 | **1** | – | – | 1 | – | 1 | – | – | – |
| 49 | Methuen, | 16,161 | – | – | – | – | – | – | – | – | 1 | **1** | – | – |
| 50 | Marlborough, | 15,814 | – | – | 5 | – | – | – | 1 | – | – | – | 1 | – |
| 51 | Newburyport, | 15,614 | 17 | – | 5 | – | – | – | – | – | 3 | – | – | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Common-correction, these deaths, while approximately correct, are not absolutely complete.

## TO THE PUBLIC HEALTH,[1] FEBRUARY, 1919.

| 38A | | 38B | | 75A | | 19C | | 7 | | 28–29 | | 30–35 | | 1 | | 38C | | 37 | | 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Trachoma. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 131 | – | 17 | – | 4 | – | 162 | 1 | 562 | 8 | 577 | 385 | 67 | 60 | 70 | 9 | 640 | 1 | 333 | 20 | 345 | 20 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 51 | – | 4 | – | 2 | – | 34 | – | 140 | 4 | 185 | 82 | 23 | 13 | 9 | 3 | 291 | – | 173 | 6 | 44 | 1 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 10 | – | 4 | – | – | – | – | – | 19 | – | 24 | 18 | 1 | 4 | 1 | – | 15 | – | 16 | 3 | 4 | 2 | 5 |
| *38* | – | *3* | – | *2* | – | *19* | *1* | *82* | *2* | *114* | *60* | *10* | *13* | *9* | *3* | *111* | – | *31* | *3* | *37* | *1* | 6 |
| 15 | – | – | – | – | – | 10 | 1 | 9 | 1 | 19 | 7 | 1 | 1 | 4 | 1 | 27 | – | 12 | 1 | 5 | – | 7 |
| 8 | – | – | – | – | – | 1 | – | 8 | – | 41 | 12 | 3 | 4 | – | – | 6 | – | 4 | – | 1 | – | 8 |
| 6 | – | 1 | – | – | – | 1 | – | 12 | – | 17 | 7 | 1 | 1 | 3 | 1 | 18 | – | 3 | 1 | 13 | – | 9 |
| 3 | – | 1 | – | 1 | – | 3 | – | 11 | – | 18 | 13 | 3 | 2 | – | – | 8 | – | 2 | – | 4 | 1 | 10 |
| 4 | – | 1 | – | – | – | 2 | – | 25 | – | 12 | 12 | 2 | 5 | 1 | – | 35 | – | 5 | 1 | – | – | 11 |
| 2 | – | – | – | 1 | – | 2 | – | 17 | 1 | 7 | 9 | – | – | 1 | 1 | 17 | – | 5 | – | 14 | – | 12 |
| *20* | – | *4* | – | – | – | *2* | – | *77* | – | *59* | *45* | *12* | *10* | *26* | *2* | *88* | – | *28* | *1* | *32* | *3* | 13 |
| 1 | – | 1 | – | – | – | – | – | 28 | – | 9 | 5 | 3 | 3 | – | – | 11 | – | 2 | 1 | 8 | 1 | 14 |
| 2 | – | – | – | – | – | 1 | – | 1 | – | 9 | 10 | 3 | 4 | 25 | 1 | 12 | – | 5 | – | 1 | – | 15 |
| 6 | – | – | – | – | – | – | – | 12 | – | 8 | 5 | 2 | – | – | – | 14 | – | 2 | – | – | – | 16 |
| – | – | – | – | – | – | – | – | 21 | – | 5 | 11 | – | 1 | – | 1 | 6 | – | 3 | – | – | – | 17 |
| 5 | – | – | – | – | – | 1 | – | 3 | – | 17 | 8 | 2 | – | 1 | – | 37 | – | 16 | – | 12 | – | 18 |
| – | – | – | – | – | – | – | – | 7 | – | 5 | 2 | – | – | – | – | 2 | – | – | – | 4 | – | 19 |
| 6 | – | 3 | – | – | – | – | – | 5 | – | 6 | 4 | 2 | 2 | – | – | 6 | – | – | – | 7 | 2 | 20 |
| *4* | – | *1* | – | – | – | *27* | – | *78* | – | *61* | *41* | *4* | *2* | *6* | – | *32* | *1* | *8* | *2* | *51* | *4* | 21 |
| – | – | – | – | – | – | 1 | – | 9 | – | 11 | 4 | 1 | – | – | – | 4 | – | 2 | 1 | 5 | – | 22 |
| – | – | – | – | – | – | 24 | – | 6 | – | 3 | 3 | 1 | – | – | – | 1 | – | – | – | 4 | – | 23 |
| – | – | – | – | – | – | – | – | 5 | – | 10 | 2 | – | – | 1 | – | 1 | 1 | – | – | – | – | 24 |
| – | – | – | – | – | – | 1 | – | 16 | – | 4 | 4 | – | – | – | – | 3 | – | 1 | – | 23 | – | 25 |
| – | – | 1 | – | – | – | – | – | 5 | – | 5 | – | – | – | 1 | – | 1 | – | 2 | – | 2 | – | 26 |
| – | – | – | – | – | – | – | – | – | – | 6 | 2 | – | – | – | – | 7 | – | – | – | – | – | 27 |
| 1 | – | – | – | – | – | – | – | 6 | – | 7 | – | – | – | 1 | – | 3 | – | 1 | – | 2 | – | 28 |
| 1 | – | – | – | – | – | – | – | 2 | – | 7 | 10 | – | – | – | – | 2 | – | – | – | 1 | 3 | 29 |
| – | – | – | – | – | – | – | – | 5 | – | 2 | 3 | 2 | 1 | 1 | – | 2 | – | – | – | 2 | – | 30 |
| – | – | – | – | – | – | – | – | – | – | 2 | 4 | – | – | – | – | – | – | – | – | – | – | 31 |
| 2 | – | – | – | – | – | 1 | – | 10 | – | 3 | 5 | – | – | 2 | – | 3 | – | – | 1 | 3 | – | 32 |
| – | – | – | – | – | – | – | – | 8 | – | – | 2 | – | 1 | – | – | 4 | – | 2 | – | – | 1 | 33 |
| – | – | – | – | – | – | – | – | 6 | – | 1 | 2 | – | – | – | – | 1 | – | – | – | 9 | – | 34 |
| *4* | – | *1* | – | – | – | *25* | – | *89* | *2* | *63* | *45* | *9* | *7* | *12* | – | *44* | – | *21* | – | *105* | *7* | 35 |
| – | – | – | – | – | – | – | – | 29 | 1 | 7 | 5 | – | – | 2 | – | 8 | – | 3 | – | 2 | – | 36 |
| 1 | – | – | – | – | – | – | – | 6 | – | 2 | 3 | – | – | 4 | – | – | – | 1 | – | – | – | 37 |
| – | – | – | – | – | – | – | – | 1 | – | 7 | 1 | 3 | – | – | – | – | – | – | – | – | – | 38 |
| – | – | – | – | – | – | – | – | – | – | 1 | 1 | – | – | – | – | 2 | – | 1 | – | 2 | – | 39 |
| – | – | – | – | – | – | – | – | 10 | – | 2 | 1 | – | 1 | – | – | 2 | – | – | – | 2 | – | 40 |
| – | – | – | – | – | – | – | – | 3 | – | 3 | 1 | – | – | – | – | 2 | – | 1 | – | 6 | 1 | 41 |
| – | – | – | – | – | – | – | – | 1 | – | 3 | – | – | – | 1 | – | – | – | 1 | – | 1 | – | 42 |
| – | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | 1 | – | – | – | 1 | – | 43 |
| – | – | – | – | – | – | 1 | – | 3 | – | 3 | – | – | – | – | – | 1 | – | – | – | 16 | 3 | 44 |
| 1 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | 1 | – | 45 |
| – | – | – | – | – | – | – | – | – | – | 5 | 7 | – | – | – | – | 2 | – | – | – | – | – | 46 |
| – | – | – | – | – | – | – | – | 2 | – | 3 | 1 | 1 | – | 1 | – | 6 | – | – | – | 14 | – | 47 |
| – | – | – | – | – | – | 1 | – | – | – | 1 | – | – | – | – | – | 1 | – | – | – | 5 | – | 48 |
| – | – | – | – | – | – | 1 | – | – | – | 1 | 2 | 1 | – | – | – | – | – | – | – | 1 | – | 49 |
| – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | 50 |
| – | – | – | – | – | – | 2 | – | – | – | 1 | 1 | – | 1 | – | – | 4 | – | 2 | – | – | – | 51 |

wealth. Owing to the delay by physicians in returning death certificates sent them for addition and

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | CITIES AND TOWNS GROUPED IN ORDER OF POPULATION. | Population estimated as of July 1, 1919. | 19A Chicken Pox. |  | 9 Diphtheria. |  | 61A Ep. Cerebrospinal Meningitis. |  | 19B German Measles. |  | 92 Lobar Pneumonia. |  | 6 Measles. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | 1 | – | 2 | – | – | – | – | – | – | 1 | – | – |
| 53 | Winthrop, | 14,968 | – | – | 1 | – | – | – | 4 | – | 2 | – | 2 | – |
| 54 | Weymouth, | 14,874 | – | – | – | – | – | – | – | – | 4 | – | – | – |
| 55 | Greenfield, | 14,466 | 1 | – | 4 | – | – | – | 1 | – | – | – | 1 | – |
| 56 | Milford, | 14,214 | 1 | – | – | – | – | – | – | – | 1 | 3 | – | – |
| 57 | Wakefield, | 13,939 | 1 | – | – | – | – | – | – | – | 4 | – | – | – |
| 58 | Plymouth, | 13,587 | 1 | – | 3 | – | – | – | – | – | – | – | – | – |
| 59 | Norwood, | 13,472 | 3 | – | – | – | – | – | – | – | 2 | – | 1 | – |
| 60 | Webster, | 13,453 | 3 | – | 5 | – | 1 | 1 | – | – | 5 | 1 | – | – |
| 61 | Adams, | 13,378 | – | – | 4 | – | – | – | – | – | – | – | – | – |
| 62 | Clinton, | 13,289 | 1 | – | – | – | – | – | – | – | 1 | – | 1 | – |
| 63 | West Springfield, | 13,119 | – | – | 2 | – | – | – | – | – | 3 | 2 | – | – |
| 64 | Danvers, | 12,663 | – | – | 8 | – | – | – | – | – | – | 1 | – | – |
| 65 | Dedham, | 12,524 | – | – | 9 | – | – | – | – | – | 3 | 1 | – | – |
| 66 | Natick, | 12,175 | 3 | – | 1 | – | – | – | – | – | 1 | – | – | – |
| 67 | Saugus, | 12,061 | 2 | – | – | – | – | – | – | – | – | – | – | – |
| 68 | Easthampton, | 10,956 | – | – | 1 | – | – | – | – | – | 5 | – | – | – |
| 69 | Athol, | 10,831 | 1 | – | – | – | – | – | – | – | – | – | – | – |
| 70 | Bridgewater, | 10,807 | 2 | – | – | – | – | – | – | – | – | 1 | – | – |
| 71 | Winchester, | 10,590 | 1 | – | – | – | – | – | – | – | 1 | 1 | – | – |
| 72 | Braintree, | 10,417 | 1 | – | 1 | – | 4 | 1 | – | – | 1 | 1 | 1 | – |
| 73 | Belmont, | 10,219 | 1 | – | 1 | – | – | – | – | – | 2 | – | – | – |
| 74 | Palmer, | 10,191 | – | – | 2 | – | – | – | – | – | – | – | – | – |
| 75 | TOWNS, 5,000–10,000. | *342,000* | *45* | – | *30* | *2* | *2* | *1* | *3* | – | *25* | *37* | *13* | – |
| 76 | TOWNS, 2,500–5,000. | *188,565* | *11* | – | *12* | *2* | – | *1* | – | – | *32* | *12* | *16* | – |
| 77 | TOWNS UNDER 2,500. | *211,793* | *9* | – | *21* | – | *1* | – | – | – | *7* | *10* | *20* | – |
| 78 | STATE INFIRMARY, | – | – | – | – | – | – | – | – | – | *4* | *8* | – | – |
| 79 | CAMP DEVENS, | – | – | – | *1* | – | *1* | – | – | – | *3* | – | *1* | – |

In addition to the above there occurred 2 cases of anterior poliomyelitis, 1 in Boston and 1 in Dedham; gra in Haverhill, with 4 deaths, 1 in Boston, 1 in Danvers, 1 in Haverhill and 1 in Melrose, and 22 cases of Somerville and 1 in Taunton, with 3 deaths, 1 in Chatham, 1 in Fall River, and 1 in Springfield.

## TO THE PUBLIC HEALTH — Concluded.

| 38A | | 38B | | 75A | | 19C | | 7 | | 28–29 | | 30–35 | | 1 | | 38C | | 37 | | 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Trachoma. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| – | – | – | – | – | – | 3 | – | 1 | – | 1 | **1** | – | – | – | – | – | – | 2 | – | 2 | – | 52 |
| – | – | – | – | – | – | 1 | – | 4 | – | 1 | – | 1 | **1** | – | – | 1 | – | 2 | – | – | – | 53 |
| – | – | – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | – | – | – | – | 1 | 54 |
| 1 | – | – | – | – | – | 3 | – | 2 | – | 1 | **1** | 1 | – | – | – | – | – | – | – | 3 | – | 55 |
| – | – | – | – | – | – | 5 | – | 4 | – | 1 | **1** | – | – | – | – | – | – | – | – | – | – | 56 |
| – | – | – | – | – | – | 4 | – | – | **1** | 1 | – | – | **1** | – | – | 1 | – | – | – | – | – | 57 |
| – | – | – | – | – | – | – | – | – | – | 2 | – | 1 | – | – | – | – | – | – | – | – | – | 58 |
| – | – | – | – | – | – | – | – | 2 | – | – | **1** | – | **1** | – | – | – | – | 1 | – | – | – | 59 |
| – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 1 | – | 1 | – | – | – | 60 |
| – | – | – | – | – | – | – | – | – | – | 3 | **1** | – | – | – | – | 1 | – | – | – | – | – | 61 |
| – | – | – | – | – | – | – | – | 2 | – | 1 | – | 1 | **1** | – | – | – | – | – | – | – | – | 62 |
| – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | – | 3 | – | – | – | – | – | 63 |
| – | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | 1 | – | 2 | – | 5 | – | 64 |
| – | – | – | – | – | – | 1 | – | 1 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | 65 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 4 | – | – | – | – | – | – | – | 66 |
| – | – | – | – | – | – | 1 | – | 5 | – | 2 | **3** | – | – | – | – | 1 | – | – | – | 10 | **1** | 67 |
| – | – | – | – | – | – | – | – | 3 | – | – | – | – | – | – | – | – | – | 1 | – | 1 | **1** | 68 |
| – | – | – | – | – | – | – | – | – | – | 1 | **1** | – | – | – | – | 2 | – | – | – | 1 | – | 69 |
| – | – | – | – | – | – | – | – | 3 | – | 1 | **4** | – | – | – | – | 2 | – | – | – | – | – | 70 |
| 1 | – | – | – | – | – | – | – | – | – | – | **3** | – | – | – | – | – | – | – | – | – | – | 71 |
| – | – | – | – | – | – | – | – | – | – | 2 | **1** | – | 1 | – | – | 1 | – | 1 | – | – | – | 72 |
| – | – | – | – | – | – | 2 | – | – | – | 2 | **2** | – | – | – | – | – | – | 2 | – | 32 | – | 73 |
| – | – | – | – | – | – | – | – | 2 | – | 1 | **1** | – | – | – | – | – | – | – | – | – | – | 74 |
| *2* | – | – | – | – | – | *3* | – | *41* | – | *26* | *19* | – | *7* | *3* | – | *20* | – | *3* | – | *21* | *2* | 75 |
| *2* | – | – | – | – | – | *14* | – | *19* | – | *8* | *13* | *4* | *3* | *4* | – | *8* | – | *1* | *3* | *32* | – | 76 |
| – | – | – | – | – | – | *18* | – | *15* | – | *14* | *40* | – | *1* | – | *1* | *3* | – | *1* | – | *18* | – | 77 |
| – | – | – | – | – | – | – | – | – | – | *23* | *20* | *4* | – | – | – | *9* | – | *11* | *2* | *1* | – | 78 |
| – | – | – | – | – | – | *20* | – | *2* | – | – | *2* | – | – | – | – | *19* | – | *40* | – | – | – | 79 |

2 cases of dysentery in Boston, with 1 death in Pittsfield; 1 case of malaria in Mansfield; 1 case of pellaseptic sore throat, 2 in Arlington, 8 in Boston, 1 in Fall River, 2 in Haverhill, 1 in Lynn, 1 in Sharon, 6 in

# MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

Commissioner of Health, EUGENE R. KELLEY, M.D.

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# THE COMMONHEALTH

VOL. 6, NO. 4 JULY-AUG., 1919

## BI-MONTHLY BULLETIN

MASSACHUSETTS
STATE DEPARTMENT OF HEALTH

EUGENE R. KELLEY, M.D., COMMISSIONER

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# THE RELATION OF THE PUBLIC HEALTH NURSE TO THE TUBERCULOSIS PROBLEM IN MASSACHUSETTS.[1]

By Joseph H. Pratt, M.D., Boston.

It is estimated that there are 20,000 consumptives in Massachusetts at the present time. Many of them are dependent on the public clinics and dispensaries for advice and treatment. The diagnosis is made by the doctors, but the details of treatment are largely placed in the hands of the nurses. Here is a great responsibility and a great opportunity. Dr. Hitchcock says that 80 per cent of the tuberculosis work properly belongs to the nurses, and I think this estimate is not too high. In my own work among poor consumptives, in the tuberculosis class, I know that the success that has been achieved has been due chiefly to a succession of remarkably able women who have visited the patients and supervised the treatment. Every public health nurse should understand the essentials of successful treatment. Unless she knows the right way of treating the disease, how can she teach the consumptive what he must do in order to recover his health?

The rest method which we have followed for fourteen years is one that is easy to learn and easy to teach. It can be carried out satisfactorily in the home of the patient, and adequate supervision is possible with only occasional visits by the nurse. You must believe in the strict rest treatment yourself before you can gain the power of convincing your patients to take it up. At this time I cannot enter into any detailed explanation of the beneficial effect of rest or what it accomplishes, but I urge you to procure Dr. Lawrason Brown's "Rules for Recovery from Tuberculosis," and read and study and inwardly digest the chapter on rest. If still doubtful in your mind, I invite you most cordially to attend a meeting of the Emmanuel Church Tuberculosis Class, of which I am the director, and see for yourself living witnesses of the curative power of this form of treatment.

There are certain features regarding the disease which you must understand if you are to give wise counsel to the patient and his family. A patient in the curable stage of the malady rarely feels sick. If he accepts his feelings as his guide, he will not take up the bed-rest treatment until he has in all probability reached a condition in which recovery is impossible. It is easy to effect improvement by various forms of treatment, but to check the disease permanently is difficult, and is rarely accomplished unless a relatively large amount of rest is taken by the patient, and the more complete and prolonged the rest the greater the chance of permanent recovery.

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[1] Address at Conference of Tuberculosis Dispensary Nurses held at Springfield, Mass., Feb. 27, 1919.

Walshe, the English physician, writing as early as 1854, before anything was known about the effect of rest or out-of-door life, — at a time, in fact, when air artificially warmed was advocated in treatment, — said that 68 per cent of the patients whose records he had analyzed left the Brompton Consumptives' Hospital improved or unadvanced, while 32 per cent left in a worse state than when they entered, or died within its walls. So far as saving life was concerned, this meant little or nothing. The progress of disease was simply checked for a time.

Remember, also, that the progress of the disease in persons with good powers of resistance is interrupted with frequent halts, when the disease seems to recede. This was recognized by Lænnec, who spoke of the "false convalescence." The patient has a bad cold and some fever. In a few weeks the cough is less and the fever gone. He is soon on the streets again, and for a time he gains in weight and strength. He is almost well, he thinks; the cough has ceased to trouble him at all. Then he "catches another cold," as he puts it, and the symptoms return only to disappear again, but leaving him thinner and weaker than before. This slow march to the grave is one of the causes of the dread of consumption. The disease improperly treated plays with its victim like a cat with a mouse.

Treatment of active pulmonary tuberculosis is never begun too soon, but often too late. If the house is on fire, only a fool would wait to see if it did not go out of itself before sounding the alarm; and a greater fool is he who waits to see if the tubercle bacilli will not disappear from his sputum by compromise measures if he gives them time before he makes up his mind to take the proper treatment. Poor patients often say they cannot afford to stop work and take treatment, and I am sorry to say that some physicians accept this argument as convincing when the patient's symptoms and signs, though definite, are slight and his earning power unimpaired. The poor patient in this condition can less afford to delay treatment than the rich consumptive, because with the poor man loss of pay for a single day is a serious matter, and hence the greater the need of a speedy return to health. The longer the delay before beginning treatment the greater the damage to the lungs, the longer the period of treatment and the less chance of recovery.

Too few physicians appreciate yet what can be accomplished by prolonged bed rest in the open air, and too few know that it can check the disease not infrequently when the ordinary outdoor treatment has failed. I have used bed rest as the basis of treatment in about 200 cases under my care during the past ten years, and the detailed records I have kept of these cases furnish conclusive evidence of its great value. Even the chronic consumptive in whom the disease is extensive but only slightly active, with normal or slightly elevated temperature and slow pulse, who tires quickly, has a severe cough, and an expectoration which contains tubercle bacilli, can have a fair chance of arresting the disease and regaining his wage-earning power if he will follow the bed-rest treatment for a long period, — twelve to sixteen months, or longer. I have one patient who finally recovered, although for nearly three years no exercise was allowed.

One of the most striking illustrations of the great value of strict rest in the chronic patient was told to me by Dr. Baldwin in Saranac. Years ago, at a time when little was known of the curative power of rest, and when the rest treatment was only used with patients with fever or otherwise acutely ill, there was a young man at the Trudeau Sanatorium who had reached a stationary condition. He was an advanced case, with a cavity in his lungs and tubercle bacilli in his sputum. He seemed doomed to a life of chronic invalidism. One day while out tobogganing he broke both his legs. This turned out to be a most fortunate accident. Weeks of strict rest treatment followed while the bones were mending. When he finally got up and about the signs of cavity had actually disappeared, and tubercle bacilli could no longer be found in the sputum. He had made a good recovery. He is still well and working, and has held for many years a position of trust and importance in Saranac Lake.

If we could induce every consumptive with active disease in Massachusetts to go to bed out of doors for six or eight weeks, I am sure that the death rate from tuberculosis would show a substantial drop the very next year. Short as this period is, it is sufficiently long to permit nature to gain eventual mastery of the disease in some cases, even when the patient returns to work immediately afterwards. Intensive treatment of such short duration will, of course, be followed by arrest of the disease in only the more favorable cases, but when it does occur it furnishes a striking demonstration of the curative power of rest.

A year ago Dr. Lawrason Brown and I, in a paper on "Tuberculosis as an Army Problem," reported the case of C. G., discharged from Camp Devens with tubercle bacilli in the sputum and slight but definite signs of disease in the lungs. Two days after his return home he began bed-rest treatment in a corner room, — the indoor treatment. I do not endorse it, but it seemed necessary in this case. He was kept in bed for seven weeks, aside from a weekly trip to the class meeting. Exercise in the form of short walks was then begun. Against advice he left the class and went to work two weeks later. He had gained 24 pounds in eight weeks, the tubercle bacilli had disappeared, the lungs were clear of râles, and he felt strong and well. He has been well and working from February, 1918, until the present time. (He was well in May, 1919.)

The rest treatment is gaining adherents rapidly. It is used in some of the leading private sanatoriums, although not in as strict a form as I have advocated. Three years ago selected volunteers among the patients entering Adirondack Cottage Sanatorium were kept in bed for six weeks after admission. This group did better than those who received the ordinary treatment. Bed rest actually became popular, and more of the new patients applied for this preliminary period of strict rest.

At the Channing Home for tuberculous women in Boston all the patients receive bed-rest treatment throughout their stay.

Dr. Wood, who for thirteen years has had charge of a tuberculosis class in Boston, stated at a recent conference of public health nurses that he now gives six weeks of bed rest to all new patients.

So simple is the technique of the bed-rest method that I have directed the treatment in some cases by correspondence, with an encouraging measure of success.

One of the first cases in which the correspondence method was used by us was that of Mr. L——, who spoke himself of the rest treatment at the conference of public health nurses last year in Boston. In that case occasional visits were made by Miss Hills, the class nurse, who gave detailed instructions to the patient and the family. The economic and medical difficulties made this case one of especial interest in view of the successful outcome.

There were many discouraging features. The patient lived about 20 miles from Boston, and the little clearing on which he and his family lived in a four-room shack was several miles from the railroad station. There were seven children and the oldest was nine years of age. The patient was thirty-five years old when he entered the class in 1911, and he had been sick for two and a half years. He had been treated for tuberculosis at a dispensary for a year, but had gained very little. At the time we took up the case he was much under weight. He had extensive tuberculosis of both lungs, was raising one-half cupful of sputum a day, and tubercle bacilli were present. He had no money. He received $5 a week from the town in which he had previously dwelt. In various ways sufficient money was obtained to support the family. The patient's bed was in a lean-to beside the house. It was opened up to secure plenty of fresh air. He followed the bed-rest treatment. Between May and October the nurse made only five visits. It was a long, hard struggle, but eventually he recovered his wage-earning power. None of the children became tuberculous.

He wrote in February, 1917, as follows: "Physical condition has been very good for past two and a half years. Have worked pretty steadily all during that time at general farming, raising all of our own produce, and mostly hand power, also building two dwelling houses, doing stone mason work for cellar as well as carpentry on one (a two-story building). This was in 1915; built second house in November and December, 1916. Sputum examination has been negative for past year and a half." He is now employed as express messenger on the railroad, and receives $26 a week.

I would suggest that a State correspondence class be formed by the State Department of Health. If this proved to be a success it could be split up into district classes when the details of the method had been worked out satisfactorily. No patient should be admitted unless his application for membership was endorsed by his private physician or the dispensary physician. The patient should agree to follow strictly the detailed instructions given by the nurse and by correspondence. He should begin the rest treatment at once, and provide facilities, if he has the means, for taking the bed-rest treatment in the open air. The details of the daily life should be entered in a record book, and reports made in writing to the director of the class at stated intervals.

This plan would permit of the instruction of a large number of patients at a minimum of expense. It would keep the patient in contact with his doctor; the class director should insist that the patient report to his doctor at stated intervals, one to two months, for an examination, and that the regular fee should be paid to him. It would lighten the labor of the overworked nurse, and permit of giving every intelligent, conscientious patient a chance to take the form of treatment that offers the most hope for recovery. Even if he lived in a remote village he would get some supervision from those with experience, and he would take heart from knowing that he was not fighting the battle alone, and that he had guidance adapted to his special case.

# HOW PUBLIC HEALTH NURSING CAN BE EXTENDED OVER A GROUP OF SMALL TOWNS.

By Willarette C. Sears, R.N., Great Barrington.

THE Visiting Nurse Association of Great Barrington has been organized ten years last March. There were 89 patients the first year, and 1,140 visits were made; and there were 569 patients the tenth year, and 4,376 visits were made.

Last June (1918), at the regular monthly meeting of the association, it was suggested, discussed and voted to extend the work to include our surrounding towns that could not alone afford public health nursing, and to give our neighbors an opportunity to have the services of a public health nurse. A committee was appointed at this meeting to confer with Alford, North, West and South Egremont and Sheffield. It was decided to ask the chairman of the Council of National Defense of each of these towns to meet this committee in the office of the association, and there the plan was discussed *pro* and *con.* Public meetings were held in the various towns where the object and work of the association and the nurses were demonstrated. In one town we spoke after a grange meeting, when a pageant for the benefit of the Red Cross had been given. It seemed rather late to keep the people, but this was a farming community, and these people do not attend many meetings during the summer months.

Each town was asked to contribute toward the salary of a nurse the amount regulated by the population of the town, the association furnishing a Ford car and making up any deficiencies. Two representatives were chosen from each town to receive calls and to keep the people informed regarding the nurse.

A public health nurse was obtained and the work started Aug. 1, 1918. This enlarged our territory by many miles of sparsely settled, rural country, the New York State line being our western boundary, and the Connecticut line our southern boundary. The population approximated 3,000, making a total of 9,600 people in our territory, with three public health nurses to cover the field. The association does generalized nursing, with bedside care the foundation stone, and school nursing, child welfare, tuberculosis nursing and attendance at confinement as building blocks.

We began work with the baby weighing and measuring for the Children's Bureau, and as we attended confinement cases we were soon busy helping repopulate the world.

Of course, we all know how the epidemic of influenza changed our plans and kept us very busy from October through December. School visiting in the adjoining towns or rural schools was started in January. We have 19 rural or ungraded schools and 5 graded schools in the centers, a total of 48 rooms, not counting the two high schools. The Modern Health Crusade Tournament began in February, and every school was visited and enrolled except the high schools. Many a parent objected to the cleanliness and routine required, especially the giving up of tea and coffee for the child. It is much simpler to give the children what the adults have rather than to make something extra. The children have been very loyal to us, and some of the mothers were quite angry because the children would not drink the forbidden tea and coffee, but insisted on cocoa or milk or nothing. The results of the tournament have been marked, and in some of the schools the children have improved very much in general appearance; in others you rather doubt the real benefits. One French boy had never taken a bath except to go swimming in the summer, and it took several persuasive visits to accomplish the feat.

We planned a surprise party for the children receiving the gold pins. A Punch and Judy show was purchased, and the show given to all schools carrying the tournament through the fifteen weeks. Eleven hundred gold pins were given out. Four rural schools finished the ten weeks, getting the silver pins, but owing to measles and mumps did not complete the tournament. The teachers were enthusiastic about the work, and in most of the schools co-operated successfully with us.

Health talks were started in some of the schools, but not many were given, as either the roads were impassable, or we were too busy, as we were handicapped by the unavoidable absence of one of the nurses.

The next step which we have started is to correct as far as possible the physical deficiencies of the school children. We are getting the names and addresses of the children that need attention given to their eyes, adenoids and tonsils. This summer arrangements are being made, and if the parents consent the children will be given proper treatment. The nearest eye clinic is 30 miles away, so most of this work is attended to in the summer time, when traveling is not so difficult.

As yet no dental provision has been made for the rural towns, but we are hoping something can be accomplished along that line soon, for the need is obvious.

A rest room was opened Saturday afternoon and evening in December for the women and children of the adjoining towns. This room has been well patronized, and we are trying to make it a place for mothers to leave their children instead of taking them shopping. We find people coming in for advice and help, as one of the nurses can always be found there.

Our work has barely begun in southern Berkshire. The unhygienic rural school, with its insanitary condition, its lack of everything but neglect, improperly heated, old and musty, is a great problem.

## RURAL PUBLIC HEALTH NURSING.

By Josephine Henderson Cazneau, R.N., Medfield.

RURAL public health nursing presents difficult problems and many kinds of work. If the nurse has just finished a public health course she is ready to take up her duties, filled with enthusiasm, ideals and theories, and, coming from a city of needs to a conservative New England town with only a scattering of the foreign element, she is met by her first problem. The community does not feel the need of a nurse; she is merely allowed here on trial, and it is up to her to prove that this new type of preventive educational work is just as essential in the country, if not more so, than in the city. It cannot be done in a few months; it may even take several years before she can recognize results which she had expected sooner. She cannot specialize; her time must be divided among the various works that present themselves. Nursing calls must always be attended to, and this allows an opening into some homes, but we must not become so engrossed with illness that the educational part of our program is forgotten. It is through the children we expect to reap the results of our toil. We may not see it, but we do know that the children of the future will take for granted all these new ideals we are trying to instill now in the minds of the present generation. Let us consider prenatal nursing. If this has proved such a success in cities, how much more necessary is it for our country mothers, with hospital facilities miles distant, and a scarcity of physicians. The education of our young mothers has been sadly neglected in regard to preparation for motherhood, and the first child is a bewildering experiment, over which many come to grief. A friendly visitor in the home to advise as to diet, recreation, clothing, examination of urine, insisting on patients calling in their physicians at an early date, then keeping him in touch with the case by frequent reports; helping with necessary arrangements as to supplies and clothing, assisting the doctor at time of birth and then the care of mother and child for at least ten calls, with follow-up work until the child is of school age, makes the nurse indispensable to mother and family.

School work consists in assisting the school physician with medical inspection; frequently examining the teeth, throat and heads of the pupils and submitting reports to the doctor when necessary; and in giving talks and demonstrations on emergencies. Considerable attention in our towns is given the teeth, and much repair work is done at the Harvard Dental Clinic, the children being conveyed there by auto.

The school lunch is another problem of interest, especially in rural towns. Many children leave home in the early morning, returning late in the afternoon. Unless supervised, children are apt to rush the morning meal, and some leave without eating anything, for fear of being late for school. The lunch they take with them is eaten at recess, and none is left for the noon meal, consequently leaving hungry children for the teacher during the afternoon session. I am sorry to say that many mothers do not pay proper attention to the lunch, some being decidedly unattractive and far from tempting.

The school lunch eliminates this, and in a few months demonstrates its worth. If money cannot be appropriated for this, a nurse can carry it along in a crude way until money is forthcoming, or it can be turned into a domestic science department. The school lunch can be tried out with little expense by the loan of an oil stove. Dishes and pans can be borrowed from the grange, and some interested party will always advance a small sum of money on trial. Begin with cocoa, milk and sandwiches, then introduce soups. In order to carry on school work successfully one must have hearty co-operation with school superintendent, physicians and school committee.

Social·service work materializes mostly through school or nursing calls, and is done in a quiet way. There is always some one who needs a helping hand over a rough place. Here is an instance. Johnny and Helen were absent from school for several days, and the nurse decided to look them up. They lived a long distance from the school, and neighbors in that section were scarce. The mother was found in bed ill, and the father had been out of work for some time. The doctor had been in a week previous, but they could not afford to send for him too often. Patient's temperature was taken, condition noticed, a few questions asked, a hurried call for the doctor in the near-by town, and on his arrival it was found that the case was indeed an urgent one. To save her life the mother must be rushed to a city hospital and immediately operated upon. It was necessary to hunt up some one to care for the six little ones, and a relative offered her services. A job was obtained for the father, and there were months of planning to place the family on their feet again; but it was time well spent, and to-day the family could not be recognized as having had such an experience. I shall never forget one incident in this case. After the mother returned home she failed to gain as we hoped, so we decided to call in a most competent but exceedingly busy physician. On leaving the patient the doctor asked the relative how long she would remain to look after things, and on receiving a reply that she must go back to her job, as there was more money in it, the doctor reached in his pocket, took out a bill and placed it in the woman's hand, and said, "Stay where you are a little longer; you are doing more good here."

The tuberculosis patient in a rural town is in great need of preventive teaching. Sanitary conditions in the country are not as compulsory as in the city, and if there are laws pertaining to such, there is laxity in enforcing them. Some one says, "Health is wealth and our greatest asset," yet in our town's budget it is the least provided for. The patient must be taught how to live in order to safeguard his family and the public with whom he may come in contact. If he is unable to work and his income is used up we explain to him what the State is willing to do to help out under such conditions.

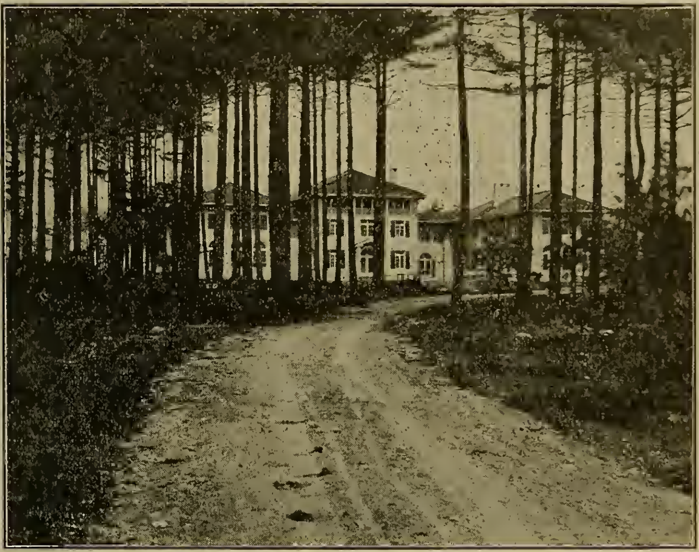
We must not fail to mention the classes of instruction to mothers, and to those who are not mothers, in home economics, home nursing, sewing and, in fact, anything pertaining to a home that one wants to know. We must educate all towns to the fact that a public health nurse is not a charity nurse, as many think. She is a specially trained woman, especially needed in rural towns as a community mother, and each individual may call on her, either in sickness or health. She is there to help solve many curative, preventive and economic problems tending to benefit the town.

## THE NEW PLYMOUTH COUNTY TUBERCULOSIS HOSPITAL.

By Frederic T. Bailey, County Commissioner.

THE dignified name of this institution is the Plymouth County Hospital, but we predict that within five years it will be known as a health shop. Its business is to manufacture health, and desperate indeed must be the case which will not yield to the health-giving conditions which here prevail.

The dedication took place on May 31, 1919, and was well attended by State department officials, selectmen, boards of health, physicians and superintendents of other institutions. These were all patients in the hospital at 12 o'clock, but were discharged at 1.15 and became out-patients in the delightful pine grove, where they were cheered by music from Cox's orchestra of Brockton and dosed with "Dr. Bradford H. Peirce's Favorite Prescription," rolls, chicken and potato salad, cold meat, cake, ice cream and coffee. They apparently enjoyed the after-dinner speaking, and showed no signs of fatigue, though several speakers claimed their attention for two or three minutes each; and just as Old Glory was flung to the breeze all joined in the singing of "America." Apparently every patient went home in perfect health, and carried a sixteen-page pamphlet containing half-tone cuts of the hospital, which had been prepared by the trustees.



Plymouth County Tuberculosis Hospital.

The hospital was built under chapter 286 of the General Acts of 1916, and will receive patients at once. Dr. Bradford H. Peirce, formerly of Cambridge, is the superintendent, and the trustees feel that in addition to the correct diagnosis and skillful treatment of tuberculosis, patients will find a cheerful, homelike atmosphere which will go far toward a complete recovery of health.

The hospital is situated in the center of the county, within fifteen minutes' walk of the South Hanson railroad station, on the line of electrics between Brockton and Plymouth, and has 94 per cent of the population of the county within 15 miles by aeroplane.

It is intended to care for all cases of tuberculosis in the county needing hospital treatment. The buildings are of tile, gypsum and concrete, and so fireproof. The capacity is 50 beds, or 66, or any number under 100, and with its 53 acres of land, its sunny slope, and its ample pine groves for outdoor patients, there is nothing required by the people of Plymouth County which cannot be supplied here.

The cost of building and equipping will be about $275,000, and will be assessed on the cities and towns of the county in proportion to their valuation. They will meet the expense by issuing notes to run for any length of time under twenty years. The cost of operation will be assessed on all the towns annually in January. Board will be paid by the patients or their friends, or by the towns sending them. This will be based on the actual cost of care and treatment, which for the present is estimated at $1.30 per day, or $9.10 per week. In case this is paid by the town it will be reimbursed $5 by the State.

Application for admission should be made to the board of health in the town where the patient resides.

## THE CHILD WELFARE EXHIBIT OF THE DIVISION OF HYGIENE.

Genevieve R. Jules, R.N., Health Instructor, Massachusetts State Department of Health.

THE value of a properly constructed exhibit as a means of popular education is no longer questioned. The present traveling child welfare and children's food exhibits of the Massachusetts State Department of Health comprise a number of colored charts and screens, table displays and a motion-picture machine. Health literature is also provided for free distribution. People now attend an exhibit for instruction and entertainment rather than from curiosity. To hold a successful exhibit one must, of necessity, secure the co-operation and assistance of the local people. The degree of success in our later campaigns for child welfare has depended largely upon the response of the townspeople, and also upon the time allowed for preparation. As a general rule, two field workers are desirable if the exhibit is to be in use every week for several months, in order that sufficient time may be devoted to the preliminary work in the community. One can then be on duty with the exhibit while the other is free to do advance work in the next community to be visited.

Lectures and demonstrations are usually planned for the afternoons and evenings. As a rule, the afternoons are devoted to one or two talks to the school children, ranging from the fifth grade through the high school grades, and the evening program is arranged for adults. The children are assembled at a central hall, accompanied by their teachers, and attendance at the talks is compulsory. Instruction is given on "Food and its Relationship to Health" by Mrs. Alzira W. Sandwall, in charge of the Children's Food Exhibit, and on "How to Keep Well" by the nursing assistant to the District Health Officer, or by the nurse in charge of the exhibit. Where it is possible to darken the hall sufficiently, the talks are illustrated with stereopticon slides, and where facilities are available, moving-picture films are shown. Films are a popular form of education and prove very necessary to the success of the work. The following films are the ones used by the Department: —

"Bringing it Home."
Relating to infant welfare and the public health nurse.

"The Long *versus* the Short Haul."
Relating to the importance of breast feeding as compared with bottle feeding, and showing the results of using milk improperly cared for, secured from dirty, ill-kept dairies.

"In his Father's Footsteps."
Referring to farm sanitation, milk and its relation to typhoid fever.

"The Temple of Moloch."
"The Price of Human Lives."
"The Great Truth."
Three films relating to tuberculosis, showing conditions under which it occurs and measures needful to overcome it; illustrating the work of the tuberculosis nurse.

"The Price of Thoughtlessness."
Illustrating consequences of carelessness resulting in accidents which could have been prevented.

"Toothache."
Illustrating the value of proper care of the teeth, and teaching their regular cleansing.

"Fly Danger."
Showing how flies breed, their habits and how they may spread infection.

In addition to the talks a demonstration on infant care is considered most valuable, and is always enthusiastically received by the school girl, for it is well to remember that the girl of to-day is to be the mother of the future.

For the evening lecture the State District Health Officer is usually the speaker, and the topic discussed is some phase of public health pertinent to the particular needs of the community visited. For example, in communities where appropriations have recently been secured to maintain public health nursing our exhibit has been used to good advantage. The people become familiar with the Department policies, and an opportunity is afforded for the free discussion of the project. Such a campaign was carried out in the Connecticut Valley district during the month of June.

Lectures are often planned for non-English speaking people at which large audiences are the rule. Examples of such arrangements were at Taunton, where a "Portuguese night" was held, and at Easthampton, where a Polish lecturer was provided. Both meetings were productive of much good.

A topic which has aroused much interest, and upon which special lectures have been given by Dr. Lily Owen Burbank, is "Social Hygiene as a Public Health Problem." These lectures have been exceptionally well attended.

The exhibit schedule planned for the fall of 1918 was postponed because of the influenza epidemic, and was not resumed until January, 1919. From January to June, a period of about five months, programs were carried out in Amesbury, Attleboro, Belchertown, Belmont, Canton, Deerfield, Easthampton, Franklin, Haverhill, Ipswich, North Attleborough, Southampton, South Deerfield and Taunton.

The approximate attendance at the exhibits held during the past five months may be of interest: school children, from public and parochial schools, from the fifth grade up, about 10,000; adult audiences, about 11,000 persons.

It is not possible to see the result of work covering such a wide field, but it must, without doubt, make itself felt in the improved health of the community generally.

# THE COMMONHEALTH.

MONTHLY BULLETIN OF THE MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

*Sent Free to any Citizen of the State.*

MERRILL E. CHAMPION, M.D., DIRECTOR OF DIVISION OF HYGIENE, EDITOR.
Room 546, State House, Boston, Mass.

*Two Health Measures.* — It is with great regret that we have to chronicle the defeat of two bills recently before the Legislature. Both were primarily pieces of health legislation. One of these bills looked to a system of maternity benefits; the other had to do with school hygiene and physical education.

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*Maternity Benefits.* — There is no doubt in the minds of all qualified health officials and of interested laymen as to the need of some remedy for the high infant mortality and high maternal mortality which we, in common with other States, do far too little to check. This urgent need, it would seem, is not known to the public at large. In 1916 this State lost, through conditions directly caused by childbirth, 525 women. Furthermore, it is a fact that about 40 per cent of infant deaths occur during the first month of life. Inasmuch as this infant mortality during the first few weeks may be traced largely to lack of proper prenatal and obstetrical care, the importance of measures which provide for adequate supervision of mothers at these periods becomes self-evident.

Part of the reason why such supervision is not more frequent is to be found, of course, in the fact that many mothers do not themselves as yet appreciate the need of it. None the less, many would have better care if they could afford it. This applies not only to the so-called poorer classes, but often, also, to what we usually call the middle class. Indeed, there is excellent reason to believe that in a large city, at any rate, the poorer class receives better prenatal and obstetrical care than do those who are somewhat better off financially.

The question at once arises, is this a matter pertaining only to the individual, or is it a matter for community concern. It seems to the writer that the decision must inevitably be in favor of the latter view.

Reduced to its lowest terms it has to be acknowledged that the community must have a constant and increasing supply of healthy children if it is to "carry on" successfully. By putting into effect measures for reducing infant deaths from diarrhœal and other such diseases, the community has already done part of its job; it remains, however, to attack the problem at its source by safeguarding the unborn child and its mother by furnishing adequate medical and nursing supervision at the most critical period of all, namely, before and during childbirth. The enactment of legislation providing such care can confidently be looked for in the near future.

*School Hygiene.* — The fact is frequently lost sight of that there are two great subdivisions of child welfare work, looking at the matter from the physical point of view only. One aspect deals with the prevention of death, largely a question of the reduction of the infant mortality. The other aspect has to do with keeping the healthy child well, and with correcting the physical defects which handicap a child in the struggle for a happy and useful existence. The best instance of the latter effort may be seen in school hygiene.

School hygiene in Massachusetts started out with a respectable impetus from the school inspection law of 1906. This law was amended and strengthened in several subsequent years. It has, however, two striking defects: there is no provision in it for school nurses, largely because school nurses were not a factor in 1906; and there is no provision in it for any uniformity in the way the details are to be administered by the three hundred odd cities and towns of the Commonwealth.

This lack of uniformity has been held by a few persons to be a desirable thing, believing that it represents a most satisfactory condition of municipal home rule. The fact remains, however, that to the unbiased and informed observer the result has been chiefly inefficiency. Nor has this inefficiency been confined to country towns, as some city dwellers have fondly believed. Certain comparatively small towns have two or more school nurses, and certain comparatively large cities have one or less school nurse. It may be interesting at a later date to analyze a few of these cities and towns with respect to this point.

The question of physical education — if this is to be thought of as separate from school hygiene — is one which health authorities had hoped would receive proper recognition as a result of the showing of the draft examinations. There can be no question but that our children — if they are to grow up with any prospect of the physical qualifications to which they are entitled — must have ample opportunity during school years for carefully supervised physical training. To the school physician and the school nurse must be added the physical instructor, and all three must work hand in hand if the best results are to be obtained. Does it not seem to the citizens of the State that our children deserve this much?

*The Theory and Practice of Teaching for Nurses.* — Twenty graduate nurses were enrolled for the training and. the theory and practice of teaching in vocational schools given at Hyannis, Mass., July 15 to 26.

The purpose of the course was to discuss with these nurses the content of the work to be given to various groups of women enrolled in the evening classes throughout the State.

Miss Anna Kloss, agent-in-charge of the teacher-training in household schools, was in charge of the course, and Miss Anna P. Hanrahan, assistant agent, conducted it. Associated with Miss Hanrahan were Dr. Merrill E. Champion, director of Division of Hygiene, Mrs. A. W. Sandwall, food instructor, and Miss Blanche Wildes, chief of subdivision of public health nursing.

*Semi-Centennial.* — On Sept. 15, 1919, will be observed the fiftieth anniversary of the founding of the Massachusetts State Board of Health. The exercises will take place in the House Chamber at the State House at 3 P.M., and will consist of addresses by men who have been prominently connected with the public health movement in this State and elsewhere. An informal reception will follow the literary exercises. All interested in furthering the cause of the public health are cordially invited by the Commissioner of Health to attend.

# ANTENATAL AND NEONATAL FACTORS IN INFANT MORTALITY.[1]

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AN extraordinarily helpful analysis of some of the causes of infant mortality is presented by Ballantyne in an article entitled "Antenatal and neonatal factors in infantile mortality," published in "Maternal and Child Welfare," October, 1918. Inasmuch as a correct understanding of these factors underlies all effective preventive measures undertaken by health officers to lower the infantile death rate, we reproduce here the following abstract of this valuable analysis: —

The author points out that at the very center of the problem of the reduction of infantile mortality lie the evaluation and analysis of the causal factors which are responsible for that loss of young lives which is still, notwithstanding all that has been accomplished in prevention and treatment, only to be fitly characterized as appalling.

On account of the defects in statistics it is not possible to know what is the total loss of young life which occurs before birth, at birth and during the first year after birth. Some babies die in the first year of life from postnatal causes, such as the various zymotic maladies, improper feeding, defective housing, etc. Others die because of antenatal conditions, such as prematurity of birth, congenital malformations, debility, etc. Not a few die from both antenatal and postnatal causes. It is in the first month of life that these two factors tend to unite in their attack upon the newborn infant. It is at this age, after birth, that the antenatal factor is acting most powerfully, and it is at this time also, that the postnatal factor has a character which differs so markedly from that which it possesses later. Somewhere between one-third and one-half of all the deaths which occur in the first year of life take place in the first four weeks of it. Obviously, the neonatal period is a most critical one. If deaths were evenly distributed over the first year of life, one-thirteenth of them should occur in these first four weeks; but instead of that, never less than one-third of them occur then. If the fatalities of the first four weeks were to be continued during the remaining forty-eight weeks, the infantile mortality rate for the first year of life would be over 500 per thousand live births instead of 100, which it is at the present time. On the other hand, if the deaths in the first four weeks were to be reduced to the same proportion as those during the subsequent forty-eight weeks the infantile mortality rate would fall to something like 70 per thousand live births. The first four weeks, therefore, have an importance which can hardly be overestimated.

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[1] From United States Public Health Report of May 23, 1919.

## Suggested New Rates in Statistics.

The author suggests the use of the following new rates in studying infant mortality: —

(*a*) Conception rate.
(*b*) Miscarriage rate.
(*c*) Stillbirth rate.
(*d*) Neonatal death rate.

Under (*c*) the author urges that it be made possible to state (1) how many of stillbirths were prematurely born and how many had reached the full term, and (2) in how many stillbirths did the death of the unborn infant precede the confinement of the mother, and in how many was it coincident with and caused by it.

Then, there must be a differentiation made between the stillbirths which are prematurely born and those which have reached the full term; in other words, there will have to be a premature stillbirth rate and a mature stillbirth rate. Further, it must be made possible to separate the stillbirths which have died before labor from those which died in labor and to construct a rate for each; the former will be the antenatal stillbirth rate, and the latter the intranatal stillbirth rate; the former will depend mainly upon the maternal health in pregnancy, and the latter mainly upon the obstetric assistance which the mother gets in her confinement.

In discussing (*d*), the neonatal death rate, the author urges an intensive study of the deaths which occur in the first four weeks of life.

In all mortality tables the neonatal deaths must be stated separately from those occurring in the first twelve months. The neonatal mortality rate may be calculated in various ways. The one suggested is that the proportion of deaths per thousand live births which occur in the first four weeks of life should constitute the rate. It might perhaps be better to include the stillbirths which occur intranatally, but in the meantime their inclusion would complicate matters. Again, the rate might be that for the first month of life instead of that for the first four weeks; but the objection to that is that a month is less definite than four weeks, and the results would be vitiated for purposes of comparison. The rate suggested is that for one-thirteenth of the time included within the infantile mortality rate, that is, for four weeks out of fifty-two.

## LESSONS FROM THE EDINBURGH NEONATAL MORTALITY RATES.

The following table gives the Edinburgh birth rates, infantile death rates, and neonatal death rates for the years 1911 to 1917, inclusive: —

| YEAR. | Birth Rate. | Infantile Death Rate. | Neonatal Death Rate. |
|---|---|---|---|
| 1911, | 20.8 | 115 | 42.2 |
| 1912, | 19.7 | 110 | 44.9 |
| 1913, | 19.4 | 101 | 40.6 |
| 1914, | 19.8 | 110 | 43.7 |
| 1915, | 17.8 | 132 | 43.9 |
| 1916, | 17.4 | 100 | 44.8 |
| 1917, | 14.7 | 123 | 41.5 |

The first thing that arrests the attention is the height of the neonatal rate. During the seven-year period it never fell below a third of the infantile mortality rate, which varied from 100 in 1916 to 132 in 1915, and averaged 113. It marked out the first four weeks of life as by far the most fatal time in all postnatal life.

The second is that the neonatal rate does not vary *pari passu* with the infantile one. In 1916 the neonatal rate was almost at its highest level, 44.8, while the infantile rate was at its lowest, namely, 100. In 1913, however, with an infantile rate of 101, the neonatal rate was only 40.6.

A third point that invites attention is the comparison of the rates in legitimates and illegitimates. This is well brought out by the following tables of rates obtaining in the city of Edinburgh: —

| YEAR. | RATES FOR INFANTILE MORTALITY. | | | RATES FOR NEONATAL MORTALITY. | | |
|---|---|---|---|---|---|---|
| | Legitimates and Illegitimates combined. | Legitimates alone. | Illegitimates alone. | Legitimates and Illegitimates combined. | Legitimates alone. | Illegitimates alone. |
| 1915, | 132 | 130 | 151 | 43.9 | 42.7 | 56.6 |
| 1916, | 100 | 99 | 110 | 44.8 | 49.4 | 47.4 |
| 1917, | 123 | 113 | 212 | 41.5 | 38.0 | 76.0 |

It is quite clear that the neonatal rate must be scrutinized not only from the point of view of legitimacy and illegitimacy, but from all other aspects, — of housing, alcoholism, bottle and breast feeding, etc.

The fourth matter which must engage careful attention is prematurity of birth. Of the neonatal deaths in Edinburgh for the years

1915–17 nearly one-half were attributable to premature birth. There is a considerable difference, however, between what a baby is said to have died of and the conditions which would be found on post-mortem examination. In a sense the approximate 50 per cent of neonatal deaths are due to prematurity of birth, but hardly in any case is it the sole cause; alongside of it is nearly always something else, and something which the death certificate rarely names.

In the same way, other alleged causes of neonatal death, such as atrophy, marasmus and debility would, on close inspection, be found to be translatable into other medical terms and to represent other and much more definite morbid conditions.

### Factors in Infantile Mortality.

Ballantyne gives the following summary of the factors involved in infant mortality: —

(*a*) The antenatal factor, determined by placenta.
(*b*) The intranatal factor, injuries in childbirth.
(*c*) The postnatal factor, the germ-laden environment.
(*d*) A complexity of causes.

The causes of antenatal death are comparatively simple in action and reach the unborn infant through the placenta. The fatality in such cases is largely decided by the state of that organ.

The causes of intranatal death are more complicated. They represent a noncompatibility between the child about to be born and the powers by which its birth is to be effected. The causes of intranatal death can, to a great degree, be anticipated, and in many cases they can be defeated by good obstetrics.

The causes of neonatal death are far more complicated and are much less easy to master either in the sense of understanding or combating them.

## RECENT LEGISLATION.

### General Acts, Chapter 217.

An Act relative to the powers of cities and towns in respect to public recreation, playgrounds and physical education.

*Whereas*, the benefits to be derived from this act would be lost for the current year if it were not to take effect forthwith; therefore, it is hereby declared to be an emergency law, necessary for the immediate preservation of the public convenience, *Be it enacted, etc., as follows:*

SECTION 1. Chapter twenty-eight of the Revised Laws, as amended by section one of chapter five hundred and eight of the acts of nineteen hundred and ten, by section one of chapter twenty-five of the General Acts of nineteen hundred and fifteen and by chapter one hundred and twenty-four of the General Acts of nineteen hundred and eighteen, is hereby further amended by striking out section nineteen and substituting the following: — *Section 19.* Any city or town may acquire land and buildings within its limits by gift, purchase or right of eminent domain, or may lease the same, or may use suitable land or buildings already owned by it, for the purposes of a public playground or recreation centre, and may conduct and promote recreation, play, sport and physical education, for which admission may be charged, on such land and in such buildings, and may construct buildings on land owned or leased by it and may provide equipment for the said purposes. Buildings so acquired, leased or constructed may be used also for town meetings, and, with the consent of, and subject to the conditions and terms prescribed by, the officer or board in control of the building, may be used by the municipality, or by any department thereof, or by any person, society or other organization for such other public, recreational, social or educational purposes as the said officer or board may deem proper. For the purposes aforesaid, any city or town may appropriate money, and may employ teachers, supervisors and other officials, and may fix their compensation. Except in the city of Boston and except as to the making of appropriations, the powers conferred by this section shall be exercised by the board of park commissioners, or by the school committee, or by a playground or recreation commission appointed by the mayor or elected by the voters of the town at an annual town meeting or at a special meeting called for the purpose, or may be distributed between the board of park commissioners, the school committee and such playground or recreation commission, or any two of them, or they may be exercised by a committee made up from any one or more members of all or any one of the said boards or commissions, accordingly as the city council or the town may decide. Until the city council or the town makes a determination as aforesaid, the said powers shall remain in the body now exercising them. Within sixty days after the taking of land under the provisions of this section, the taking authority shall file and cause to be recorded in the registry of deeds for the county or district in which the land lies a description thereof sufficiently specific for identification and a statement of the purpose for which it was taken. Any municipal authority which is or shall be authorized to exercise the powers conferred by this section, or any of them, is hereby authorized to conduct its activities on (1) property under its control, (2) on other public property under the control of other public officers or boards, with the consent of such officers or boards, or (3) on private property, with the consent of the owners.

SECTION 2. This act shall take effect upon its passage. [*Approved June 6, 1919.*

[GENERAL ACTS, CHAPTER 195.]

## AN ACT TO PROVIDE FOR THE REGULATION AND LICENSING OF DAY NURSERIES.

*Be it enacted, etc., as follows:*

SECTION 1. For the purposes of this act, a day nursery is defined to be any institution, establishment or place in which are commonly received at one time three or more children not of common parentage, under the age of fourteen years, for a period or periods exceeding four but not exceeding twelve hours, for the purpose of nursing and care apart from their parents or guardians, irrespective of compensation or reward.

SECTION 2. No person, firm, association or corporation shall conduct a day nursery without receiving a license from the local board of health. An application therefor shall be in a form prescribed by the said board, and shall be uniform for all day nurseries within the board's jurisdiction. There shall be attached to the application a statement, sworn to by the applicant, or by an officer thereof duly authorized thereto, containing such information as may be required by the board. If, in the judgment of the said board, the said statement or any other evidence submitted in relation to the application indicates that the operation of the proposed day nursery will be for the public benefit and welfare, a license, in such form as the board may prescribe shall be issued to the applicant. All licenses shall expire at the end of the calendar year in which they are issued, but may be renewed annually on application as provided for their initial issue. No license shall be transferred except with the approval of the said board. For the issue or renewal of each license, a fee of one dollar shall be charged. All fees shall be paid into the treasury of the city or town in which the nursery is situated.

SECTION 3. The local boards of health shall make rules and regulations, and may revise or change the same in accordance with which day nurseries shall be licensed and conducted; and failure to comply with any such rule or regulation shall be sufficient cause for revocation of the license in the manner provided in the following section.

SECTION 4. The local board of health by its authorized agents shall have authority to visit and inspect any day nursery at any time in order to ascertain whether it is licensed and conducted in compliance with law, including the provisions of this act, and with the rules and regulations established hereunder. Every day nursery shall so be visited and inspected at least once in each year. After thirty days' notice to a licensed day nursery and opportunity to be heard, the local board of health may, if in its judgment the public interest so demands, revoke the license of the nursery. Every day nursery shall furnish to the said board such reports, information and other data as it may require.

SECTION 5. Day nurseries legally incorporated or in operation in this commonwealth at the date of the taking effect of this act, shall, on furnishing the statement or other information required under section two of applicants for licenses, be permitted to continue in operation for the remainder of the calendar year without securing a license under this act. The said local boards are hereby directed to cause an inspection to be made, prior to the thirty-first day of December in the current year, of all day nurseries in their respective municipalities.

Section 6. Except as provided in section five, any person, firm, association or corporation which establishes, conducts, manages or maintains a day nursery without first having obtained a license therefor, or after the revocation of the license, or in violation of any provision of this act or regulation made hereunder, and any person, firm, association or corporation which violates any provision of this act or any regulation made hereunder shall be punished by a fine of not less than ten nor more than two hundred dollars for each offence. If any person, firm, association or corporation conducting a day nursery shall be found guilty of a violation of any provision of this act or of any such regulation, in any particular relating to the safety of or the accommodations for the children, it shall be the duty of the local board of health to issue an order directing that such nursery be closed, and remain closed until such provision or regulation has been complied with.

Section 7. The provisions of this act shall not apply to day nurseries conducted by the commonwealth or by any city or town thereof. [*Approved May 29, 1919.*

## [Chapter 49.]

### Resolve providing for an investigation by the state department of health and the metropolitan water and sewerage board relative to water supply needs and resources and to the use of great ponds.

*Resolved,* That the state department of health and the metropolitan water and sewerage board, acting jointly, shall forthwith proceed to investigate the water supply needs of the inhabitants of the commonwealth, including all questions relating to the quantity of water to be obtained from available sources, its quality, the best methods of protecting the purity of the water, the construction, operation and maintenance of works for storing, conveying and purifying the water, the cost of the same, the damages to property, and all matters pertaining to the subject. The said board shall also consider and report whether any of the great ponds now used as sources of water supply might better be devoted to purposes of public recreation, and shall determine the extent to which boating, fishing or other use of any such sources may properly be authorized. The said board shall have power to employ such engineering and other assistance and to incur such expenses as may be necessary for carrying out the provisions of this resolve, and shall report fully with plans and estimates to the general court on or before the first Wednesday in January in the year nineteen hundred and twenty-one, including in its report drafts of any legislation recommended by it. Before incurring any expense the board shall, from time to time, estimate the amount required therefor, and shall submit the same to the governor and council for their approval, and no expense shall be incurred beyond the amount so estimated and approved. [*Approved June 24, 1919.*

# NEWS ITEMS.

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## BERKSHIRE DISTRICT.

### *North Adams.*

Miss Bessie Underwood, a graduate of the Instructive District Nursing Association, Boston, began her work on May 15 as municipal child welfare nurse.

Miss Wilder has resigned her position as the Metropolitan Life Insurance Company nurse, to fill one of the two industrial positions at the Arnold Print Works. Miss Ellen G. Curran has taken Miss Wilder's place with the Metropolitan.

### *Adams.*

Miss Collins, who formerly did the Metropolitan work, has resigned, to fill the vacancy at the Berkshire Cotton Manufacturing Company, made by the resignation of Miss Lashky. Miss Maud Curran has taken Miss Collins' position.

## NORTH MIDLAND DISTRICT.

Westford has been granted $500 of Red Cross funds for use of an automobile by the public health nurse.

## NORTHEASTERN DISTRICT.

### *Gloucester.*

Miss McGee, formerly of the Quincy Visiting Nursing Association, is now visiting nurse in Gloucester.

### *Lynn.*

Miss Rose McNulty has been appointed by the board of health to do school and tuberculosis nursing.

Miss Virginia Kilrain, who has been in charge of the tuberculosis work for the Lynn board of health for several years, has recently resigned to take up public health nursing in Halifax, N. S.

### *Beverly.*

On April 1, 1919, Miss Margaret G. Weir resigned her position as public health nurse, Framingham health department, Framingham, Mass., to become executive secretary at the Beverly Public Health Dispensary.

### *Salem.*

A conference of the public health nurses of the Northeastern District was held at the tuberculosis camp at Salem Willows, June 18.

The meeting was presided over by Dr. Lyman Asa Jones, District Health Officer for the Northeastern District. Short talks were given by Mrs. Maloney on "Mothers' Aid;" by Miss Grace O'Bryan on "Public Health Nursing;" and by Dr. Merrill Champion on "Certain Aspects of Child Welfare."

## SOUTHEASTERN HEALTH DISTRICT.

The first all-day conference of public health nurses in the district was held at the New Bedford Public Library on June 24, under the auspices of the New Bedford board of health.

Mr. Cooper Gaw, chairman of the board of health, gave the address of welcome.

Dr. Eugene R. Kelley, State Commissioner of Health, spoke on "Tuberculosis in Massachusetts;" Dr. Merrill E. Champion, director of the Division of Hygiene, spoke on "Child Welfare;" Miss Pansy V. Besom, R.N., of the Red Cross, gave a paper on "The Development of Public Health Nursing;" Miss Mary E. Driscoll, Head Post Worker, War Camp Training Activities, spoke on "Social Problems at the Industrial Plant." Discussion followed which was of mutual benefit.

At the close of the conference several took the opportunity to visit the New Bedford Sanatorium, one of the best equipped institutions of its kind in New England.

The conference was a decided success, and the hospitality of the board of health was much appreciated by the visitors.

## EASTERN DISTRICT.

### *Medfield.*

Mrs. Josephine Cazneau, public health nurse for Medfield, Millis and Dover, has established a community welfare room in the Red Cross quarters at the Town Hall.

This room is for the use of the three towns. It is equipped with a bed, a maternity outfit, material for teaching artificial feeding, child welfare charts, etc.

To this place physicians may send prospective mothers for suggestions, this being one phase of the new venture, the primary purpose of which is educational.

In spite of the excessive heat of June 5, 147 public health nurses met at the State House to hear an instructive talk on "The Summer Diarrhœa of Infants and Children" by Dr. Richard M. Smith, visiting physician, children's medical out-patient department, Massachusetts General Hospital. The paper was opportune, reviewing briefly the needs of children during the hot season, with emphasis on rational feeding of the different age groups; on avoidance of overfeeding; and on efficient treatment at the onset of symptoms.

Dr. Russell B. Sprague, State District Health Officer, followed Dr. Smith with an interesting talk on "Typhoid Fever as a Public Health Problem."

On the afternoon of June 19 the Norfolk County Tuberculosis Hospital at Braintree Highlands was open for inspection to the public health nurses of Norfolk County. Refreshments were served, and Dr. Alfred Roach and the District Health Officer, Dr. Russell B. Sprague, outlined plans for the care of the patients and the needs of the county, respectively, urging the fullest co-operation of all present to help the institution fulfill its mission.

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Miss Blanche Wildes, R.N., and Miss Genevieve R. Jules, R.N., of the State Department of Health attended the convention of the New England Division of the American Nurses' Association at Portland, Me., June 26, 27 and 28.

Interesting papers on various phases of nursing work were given and were followed by free discussion.

Miss Elizabeth Ross, director of the New England Division of Nursing of the American Red Cross, gave an inspiring talk on the future of public health nursing, as conceived and planned by the Red Cross. Miss Ross ended her talk with a eulogy of Miss Jane Delano, late chief of the Nursing Division of the American Red Cross.

The round tables on the last morning of the conference were stimulating. Miss Pansy V. Besom, R.N., of the Red Cross conducted that on child welfare. Miss Jules and Miss Wildes outlined the activities of the State Department of Health for the promotion of child hygiene in Massachusetts.

The New England Division of Nurses is now an established fact, the organization having been formed at the conference, with Miss Grace Hills, supervisor of the New Haven Visiting Nursing Association, as the first president.

A round table on venereal disease nursing as part of a general public health program was conducted by Miss Bertha C. Lovell of the subdivision of venereal diseases, Massachusetts State Department of Health, in connection with the New England Conference of Nurses, held in Portland, Me., June 27.

Miss Lovell emphasized the importance of realizing that the lasting effectiveness of the venereal disease campaign will depend largely upon our success in making examination and treatment of gonorrhœa and syphilis voluntary. There will always be a small number of patients who will need to feel the stern hand of the law. The overwhelming majority, however, of those who are infected will come to our clinics and stay in them for treatment only if they feel it is to their own interest to do so. This is largely a matter of public opinion. The nurse can help to create the right type of public opinion if her own attitude is intelligent and sympathetic. She will believe, and make her belief contagious —

1. That no disease is in itself shameful. Tuberculosis, cancer, gonorrhœa and syphilis all are dangerous, painful and to be dreaded. Syphilis and gonorrhœa may, or may not, be contracted in a way that is shameful. Wholesale condemnation, even of the man or woman who contracts syphilis or gonorrhœa as a genital infection, outside of marriage, is unfair; we can only know how much to blame when we know all the facts and all the background.

2. The normal, well-behaved man or woman who has gonorrhœa or syphilis and is under treatment should generally be considered as entitled to practically all the privileges of normal living in the community, except the most intimate relation of man and wife. The period during which a case of treated syphilis is dangerous to the community is exceedingly limited. A man or woman under treatment for gonorrhœa ought never to be a danger to other adults if he observes simple precautions. Stokes, in "To-day's Problem of Disease Prevention," states that there should be regular provision in general hospitals for the care of patients with gonorrhœa and syphilis.

3. The girl who has "lost her virtue" is not thereby ruined forever. She should have as much incentive for decency as before she made her first misstep. She needs help in her efforts at self-control, and a weaning away from her viewpoint that "nothing matters now."

4. Stopping symptoms of gonorrhœa and syphilis without effecting a permanent cure is of practically no value to the individual patient; neither disease can be cured easily or quickly, or by any uniform stereotyped process, but it is worth while to work hard and spend money, time and strength to get from under their clutches.

## REPORT UPON THE WORK OF THE BACTERIOLOGICAL LABORATORY FOR THE MONTHS OF MAY AND JUNE, 1919.

The total number of examinations made was 3,619, divided as follows: diphtheria, 1,832, including 172 cultures for diagnosis, which proved positive, and 261 taken for release, which proved positive;

tuberculosis, 696 examinations, of which 177 were positive; Widal test for typhoid, 174 examinations, of which 28 were positive and 9 atypical; culture tests for typhoid bacilli, 59 examinations, with 13 positive; malaria, 17 examinations, with none positive; gonorrhœa, 779 examinations, with 71 positive; pneumonia, 41 examinations; and 21 miscellaneous examinations.

## QUARTERLY REPORT UPON THE DISTRIBUTION OF BIOLOGICAL PRODUCTS AND DIAGNOSTIC OUTFITS.

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The following gives the total number of biological products and diagnostic outfits distributed by the State Department of Health during the three months ending June 30, 1919: —

*Biological Products.*

| | |
|---|---|
| Diphtheria antitoxin: — | |
| 12,000 units (for the Boston City Hospital), | 455 bottles. |
| 12,000 units, | 108 bottles. |
| 6,000 units (for the Boston City Hospital), | 122 bottles. |
| 6,000 units, | 880 bottles. |
| 3,000 units, | 7,514 bottles. |
| 2,000 units (for the Boston City Hospital), | 72 bottles. |
| 1,000 units, | 2,083 bottles. |
| Smallpox vaccine: — | |
| Capillary tubes, | 38,795 |
| Bulk (cubic centimeters), | 2,350 |
| Typhoid vaccine: — | |
| Ampoules, | 2,208 |
| Bulk (cubic centimeters), | 4,200 |
| Typhoid-paratyphoid vaccine: — | |
| Ampoules, | 2,701 |
| Bulk (cubic centimeters), | 3,500 |
| Paratyphoid vaccine: — | |
| Ampoules, | 432 |
| Antimeningitis serum, | 1,372 bottles. |
| Silver nitrate solution, | 16,002 ampoules. |

*Diagnostic Outfits.*

| | |
|---|---|
| Diphtheria culture outfits, | 3,855 |
| Tuberculosis sputum bottles, | 1,517 |
| Pneumonia outfits, | 43 |
| Widal outfits, | 312 |
| Typhoid culture outfits, | 153 |
| Malaria-gonorrhœa outfits, | 710 |

# REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of May and June, 1919, samples were collected in 72 cities and towns.

There were 1,640 samples of milk examined, of which 520 were below the legal standard, 2 samples were skimmed milk above the legal standard, 4 samples were skimmed milk below the legal standard, 71 samples were skimmed milk not properly labeled, and 66 samples contained added water.

There were 174 samples of food examined, of which 39 were adulterated. These consisted of 2 samples of rancid butter, 20 samples of watered clams, 1 sample of coffee which contained 25 per cent of chicory, 1 sample of ice cream which contained artificial color and flavor, 9 samples of sausage, 1 of which contained coloring matter, 1 decomposed, and 7 contained starch in excess of 2 per cent; 5 samples of olive oil which contained cottonseed oil, and 1 sample of sugar submitted by the public, which was found to contain salt, — probably accidental.

There were 76 samples of drugs examined, of which 17 were adulterated. These consisted of 12 samples of denatured alcohol, all of which contained wood alcohol, not properly labeled, and 5 samples of citrate of magnesia, all of which contained magnesium sulphate.

The police departments submitted 37 samples of liquor for examination, 24 of which were above 1 per cent in alcohol. The police departments also submitted 13 samples of poisons for examination, 1 of which was cocaine, 1 cocaine hydrochloride, 7 morphine, 2 opium, and 2 samples examined for poison with negative results.

There were 24 convictions for violations of the laws, $910 in fines being imposed.

William C. Temple and Charles J. Campbell of Rutland; Sidney Davis and Manuel Reposa of Somerset; Acton Farms Milk Company of Somerville; Antone Condez of Westport; Warren F. Vieira of South Westport; Jack Foster of North Dartmouth; Warren Proctor of Leominster; Wallace Symmes of Franklin; and John Veiera of Rochester were all convicted for violation of the milk laws. William C. Temple and Charles J. Campbell of Rutland appealed their cases, and Warren Proctor of Leominster appealed his case. William A. Perry, Constantine Trearchis and Manuel F. Quaresina of New Bedford; Joseph V. Pelletiere of Worcester; Phillip A. Smart and James Frank Williams, Inc., of Lynn; and Jacintho V. Velozo of

Fall River were all convicted for violation of the food laws. Manuel F. Quaresina of New Bedford appealed his case. George H. Jacques of Newburyport and Abraham B. Gordon of Chelsea, on 2 counts, were convicted for violation of the drug laws. Morris & Co. of Boston was convicted for violation of the cold-storage law, and John W. Lovell of Duxbury was convicted for violation of the slaughtering laws.

There were 27 confiscations made, consisting of 1,600 pounds of decomposed frozen eggs, 2,804 pounds of decomposed beef, 35 pounds of immature beef, 75 pounds of decomposed beef kidneys, 976 pounds of sour beef livers, 90 pounds of decomposed beef trimmings, 100 pounds of decomposed lamb, 490 pounds of decomposed lamb fores, 950 pounds of decomposed oxtails, 90 pounds of pork, the carcass being condemned because of hog cholera, 4,299 pounds of sour pork livers, 1,600 pounds of decomposed hogs' stomachs, 403 pounds of tainted veal, 50 pounds of decomposed neck bones, 15 pounds of tainted frankforts, 640 pounds of dried-out sardine herring, and 13,375 pounds of decomposed and dried-out miscellaneous fish.

In accordance with the Acts of 1910, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Watered milk was obtained as follows: 8 samples, produced by Joseph Alves, and 4 samples, produced by Jack Foster, both of North Dartmouth; 17 samples, produced by Stephen Kazarian of Bedford; 6 samples, produced by Richard McWiliams of Clinton; 1 sample, produced by John Rofa of Sterling Junction; 6 samples, produced by John Veiera of Mattapoisett; and 7 samples, produced by Warren F. Vieira of South Westport. There were 13 samples of skimmed milk, not marked, obtained from Morris Gordan of Holliston, and 1 sample was obtained from Mike Nevala of Ashby.

Clams which contained added water were obtained from the following: 1 sample each from Bay State Market, Edward E. Estes, Phillip A. Smart, Mark W. Warren, J. F. Williams, Inc., and Wilson Fish Company, all of Lynn; Damon Freeman, Charles Fullerton, and Tony Silver, all of Winthrop; Essex Fish Market and William Stopford Company, both of Salem; Rufus S. Brown of Newburyport; Gove and Mollins of Boston; J. J. Hull of Ipswich; and 3 samples were obtained from Walter Lufkin of Essex.

One sample of coffee, which contained 25 per cent of chicory, was obtained from the Empire Grocery Company, Inc., of Boston.

One sample of ice cream, which contained artificial color and flavor, was obtained from the Atlantic Park Company, Inc., of Hull.

Two samples of sausage, which contained starch in excess of 2 per cent, were obtained from Briggs Market of Methuen; 1 sample of sausage, which contained coloring matter, was obtained from A. E. De Terro of New Bedford; and 1 sample of decomposed sausage was obtained from Mareo Planco of Boston.

Four samples of olive oil, which contained cottonseed oil, were obtained from Manuel F. Quaresina of New Bedford, and 1 sample was obtained from James Paul of Clinton.

Citrate of magnesia, which contained magnesium sulphate, was obtained from the following: 1 sample from Carter, Carter & Meigs, 1 sample from the Diamond Chemical Company, and 1 sample from James H. Marshall, all of Boston; and 2 samples from Henry Thayer & Co. of Cambridge.

Denatured alcohol, which contained wood alcohol, not properly labeled, was obtained from the following: 1 sample from Samuel's Hardware Company, and 2 samples from Chelsea Hardware Company, both of Chelsea; 2 samples from Lynn Hardware Company of Lynn; 2 samples from F. G. Baldwin of Lowell; 1 sample from E. Grinsberg, and 1 sample from F. T. Sanderson, both of Waverley.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of April, 1919: 8,185,970 dozens of case eggs, 274,882 pounds of broken-out eggs, 445,050 pounds of butter, 859,668 pounds of poultry, 141 pounds of game, 7,059,044 pounds of fresh meat and fresh meat products, and 1,467,421 pounds of fresh food fish.

There were on hand on May 1, 1919, 8,197,150 dozens of case eggs, 276,900 pounds of broken-out eggs, and 522,387½ pounds of butter.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of May, 1919: 9,007,919 dozens of case eggs, 343,276 pounds of broken-out eggs, 3,453,541 pounds of butter, 1,086,778 pounds of poultry, 3,460 pounds of game, 6,534,162 pounds of fresh meat and fresh meat products, and 6,253,450 pounds of fresh food fish.

There were on hand June 1, 1919, 16,122,659 dozens of case eggs, 420,513 pounds of broken-out eggs, and 3,089,282 pounds of butter.

### QUARTERLY REPORT ON SLAUGHTERING.

A compilation of the quarterly reports on slaughtering for the quarter ending April 1 shows that during that period 57,287 animals were inspected by local inspectors of slaughtering throughout the State. Of that number, 9,480 were cattle, 20,294 were calves, 27,170 were hogs, 318 were sheep, and 25 were goats. In addition to a number of parts which were condemned, where it was not necessary to condemn the entire carcass, 647 animals were condemned. Of this number, 168 were cattle, 332 were calves, 141 were hogs, and 6 were sheep. There were 279 animals condemned on account of immaturity, of which 277 were calves and 2 were sheep; 200 animals on account of tuberculosis, of which 145 were cattle, 8 were calves, 46 were hogs, and 1 was a sheep; 56 hogs on account of hog cholera; 15 animals on account of pneumonia, of which 5 were cattle and 10 were hogs; 17 calves on account of weak condition; 31 animals on account of bruises, of which 5 were cattle, 25 were calves, and 1 was a hog. The remaining 49 animals were condemned on account of actinomycosis, vermicular bronchitis, pericarditis, inflammation, icterus, diarrhœa, abscesses, tumor, carcinoma, septicæmia, hemorrhagic septicæmia, pyæmia, measles, chloasma, mange, ascitis, difficult parturition, milk fever, ulcers, ulcers of liver, emaciation, strangulation, improperly bled, improperly prepared, and because they died otherwise than by slaughter.

These figures, as compared with the figures for the same period in 1918, show an increase in all the carcasses inspected, except sheep, amounting to about 2,000 cattle, about 200 calves and about 800 hogs. The sheep show a decrease of about 100. The per cent of condemnations in cattle is somewhat lower, and the per cent of condemnations in calves is decidedly lower. The per cent of condemnations in sheep is higher.

## RÉSUMÉ OF COMMUNICABLE DISEASES.

### May, 1919.

*General Prevalence.*

For the month of May there were 7,476 cases of communicable diseases reported as compared with 16,005 for the same month in 1918. The total case rate per 100,000 population for May, 1919, was 190.6; the case rate for May, 1918, was 415.8.

*Diphtheria.* — There were 559 cases of diphtheria reported during May, 1919, as compared with 663 for the same month in 1918, giving an incidence per 100,000 population of 14.3 and 17.3, respectively.

*Influenza* is still decreasing, 406 cases being reported this month as compared with 1,069 last month.

*Measles* again showed a drop as compared with the same month last year; there were 1,307 cases reported during May, 1919, while

6,335 cases were reported during the same month last year. This decrease from the reported cases of 1918 has appeared each month this year.

*Scarlet fever* showed an increase over the same month in 1918, the cases reported being 805 and 487, respectively. The case rate per 100,000 population for May, 1919, was 20.5, as compared with 12.7 for May, 1918.

*Typhoid fever* showed a distinct decrease in reported cases; 42 cases were reported during May, 1919, and 70 during May, 1918.

*Venereal Diseases.* — The number of cases of gonorrhœa and syphilis reported during the month showed a slight increase over the corresponding month of 1918. During May, 1919, 1,174 cases were reported; 1,121 were reported during May, 1918. The newly reported cases of gonorrhœa were 812, and of syphilis 362. This is a moderate increase over the reported cases for the first two months this year.

*Whooping cough* also showed a decrease in reported cases, there being 471 cases reported this month as compared with 1,001 for May, 1918.

## *Outbreaks.*

Twenty cases of measles were reported by Groton on May 16. Investigation showed several undiagnosed cases at school, and absentees sick at home without medical attention. Better reporting of cases, and inspection of schools by physicians, brought results.

Of the 8 cases of smallpox reported, 5 were traced to the outbreak on the schooner "Hesperus," previously reported.

## *Rare Diseases.*

*Actinomycosis* was reported from Taunton, 1.

*Anterior poliomyelitis* was reported from Ipswich, 1.

*Anthrax* was reported from Chelsea, 1; Salem, 1; total, 2.

*Dog bite requiring anti-rabic treatment* was reported from Brockton, 1; Groton, 2; Lawrence, 2; total, 5.

*Epidemic cerebrospinal meningitis* was reported from Belmont, 1; Boston, 6; Brockton, 1; Cambridge, 1; Camp Devens, 1; Everett, 2; Fall River, 2; Gloucester, 1; Haverhill, 1; Lynn, 2; North Adams, 1; Northborough, 1; Quincy, 2; Weymouth, 1; Winthrop, 1; Worcester, 1; total, 25.

*Leprosy* was reported from Boston, 2.

*Malaria* was reported from Boston, 1; Northbridge, 1; Winthrop, 1; total, 3.

*Pellagra* was reported from Boston, 1; Foxborough, 1; total, 2.

*Septic sore throat* was reported from Boston, 6; Brookline, 1; Framingham, 1; Haverhill, 1; Leominster, 1; Lynn, 1; Newbury, 4; Newburyport, 8; Newton, 3; Saugus, 1; Sharon, 1; Tewksbury, 1; Walpole, 3; Waltham, 3; Watertown, 1; total, 36.

*Smallpox* was reported from Cambridge, 1; Edgartown, 1; Gloucester, 2; Ludlow, 1; Springfield, 2; total, 7.

*Tetanus* was reported from Easthampton, 1; Malden, 1; Pittsfield, 1; total, 3.

*Trachoma* was reported from Boston, 6.

## *Distribution.*

*All Communicable Diseases.*

| | May, 1919. | May, 1918. |
|---|---|---|
| Total cases (all causes), | 7,476 | 16,005 |
| Case rate per 100,000 population, | 190.6 | 415.8 |

*Certain Prevalent Diseases.*

| | May, 1919. | May, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | Easton, (0) 6<br>Norfolk, (0) 6<br>Weymouth, (0) 6<br>Lowell, (11) 47 |
| Total cases, | 559 | 663 | |
| Case rate per 100,000 population, | 14.3 | 17.2 | |
| Measles: — | | | Bourne, (0) 17<br>Taunton, (5) 56<br>Westport, (0) 10<br>Upton, (0) 29<br>Leominster, (2) 46<br>Winchendon, (1) 23 |
| Total cases, | 1,307 | 6,335 | |
| Case rate per 100,000 population, | 33.3 | 164.6 | |
| Scarlet fever: — | | | Gloucester, (0) 11<br>Salem, (3) 31<br>Belmont, (1) 11<br>Milford, (1) 25 |
| Total cases | 805 | 487 | |
| Case rate per 100,000 population, | 20.5 | 12.7 | |
| Whooping cough: — | | | Falmouth, (0) 8<br>Salem, (5) 31<br>Concord, (0) 11 |
| Total cases, | 471 | 1,001 | |
| Case rate per 100,000 population, | 12.0 | 26.0 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, | 734 | 886 | |
| Case rate per 100,000 population, | 18.7 | 23.0 | |
| Tuberculosis, other forms: — | | | |
| Total cases, | 86 | 80 | |
| Case rate per 100,000 population, | 2.2 | 2.1 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## JUNE, 1919.

### *General Prevalence.*

For the month of June there were 5,716 cases of communicable diseases reported as compared with 9,048 in 1918 and 10,301 in 1917. This is also a decrease of 1,760 cases from the previous month. The case rate per 100,000 population for June was 145.8 as compared with 230.3 for June, 1918.

Diphtheria just reached the endemic index for the month, while scarlet fever and whooping cough exceeded it. Measles and typhoid were gratifyingly low.

The prevalence for the first six months of 1919 (January to July) for the more common diseases was: —

| | |
|---|---|
| Measles, | 4,983 |
| Gonorrhœa, | 4,730 |
| Tuberculosis, pulmonary, | 4,054 |
| Scarlet fever, | 3,856 |
| Diphtheria, | 3,653 |
| Pneumonia, lobar, | 3,308 |
| Whooping cough, | 2,517 |
| Syphilis, | 2,160 |
| Mumps, | 1,547 |
| Tuberculosis, other forms, | 411 |
| Typhoid fever, | 302 |
| Epidemic cerebrospinal meningitis, | 150 |

*Diphtheria.* — As has been said, diphtheria just reached the endemic index for the month with 483 cases, though this is a decrease from last month (559 cases). During June of last year 473 cases were reported.

*Lobar Pneumonia.* — It is of considerable interest to note that in spite of the prevalence of influenza during the first few months of this year, the number of lobar pneumonia cases reported so far this year is 3,308 as compared with 4,335 for the same period last year. Probably the explanation is that the influenza-pneumonias were generally called broncho-pneumonias, which was probably correct, and as such were not reportable.

*Tuberculosis.* — Thus far this year pulmonary tuberculosis has shown a slight decrease, as well as other forms of tuberculosis reported. It is a great pity that more use is not made of the clinical facilities throughout the State, organized exclusively for the diagnosis of tuberculosis.

*Scarlet Fever.* — Although the 492 cases reported exceeds the endemic index for this month, it is over one-third less than last month, when 805 cases were reported. The incidence per 100,000 was 12.3 (June, 1919), 20.5 (May, 1919) and 7.4 (June, 1918).

*Whooping Cough.* — The other common disease to exceed its monthly endemic index was whooping cough, 467 cases being reported, but this was only a little more than half the reported cases for the same period last year. The incidence per 100,000 was 11.7 (June, 1919) and 21.1 (June, 1918).

*Measles.* — The decrease in reported cases from last year, which was noted in May, still continues, 891 cases being reported in June this year as compared with 3,663 for June last year, and 3,832 for June, 1917. The incidence per 100,000 was 22.3 (June, 1919), 93.4 (June, 1918) and 99.6 (June, 1917).

*Typhoid Fever.* — The number of reported cases of typhoid fever for June was most satisfyingly low, being only three more than were reported in May. The Lawrence situation, which gave trouble earlier in the year, seems to be well in hand now. The incidence per 100,000 was 1.1 (June, 1919), 1.7 (June, 1918) and 2.7 (June, 1917).

*Venereal Diseases.* — This month the reported cases of gonorrhœa showed a slight increase, and syphilis a considerable decrease, from last month, 842 new cases of gonorrhœa and 266 cases of syphilis being reported. The incidence is probably of little significance as to the prevalence of the disease in the various communities, but rather shows the prevalence of reporting for treatment.

## *Outbreaks.*

There were no outbreaks of any considerable significance. Various localities exceeded the endemic indices, and in practically every case it was traced to mild cases that were not diagnosed and therefore not quarantined, frequently because no physician was called.

## *Rare Diseases.*

*Anterior poliomyelitis* was reported from Belmont, 1; Everett, 1; Melrose, 1; total, 3.

*Dog bite requiring anti-rabic treatment* was reported from Brockton, 1; Dighton, 1; Fall River, 1; Lawrence, 1; Lowell, 3; Worcester, 1; total, 8.

*Dysentery* was reported from North Adams, 1.

*Epidemic cerebrospinal meningitis* was reported from Arlington, 1;

Boston, 6; Cambridge, 1; Hudson, 1; Lawrence, 1; Leominster, 1; Lowell, 2; Malden, 2; Marblehead, 1; Norwell, 1; Provincetown, 2; Quincy, 2; Rockland, 2; Salem, 1; Weymouth, 1; total, 25.

*Malaria* was reported from Boston, 1; Dedham, 1; Franklin, 1; Haverhill, 1; Lowell, 1; Needham, 1; Northbridge, 1; Wellesley, 1; total, 8.

*Pellagra* was reported from Danvers, 1; Somerville, 1; Worcester, 1; total, 3.

*Rabies* was reported from Fall River, 1.

*Septic sore throat* was reported from Boston, 1; Brookline, 1; Lowell, 1; Newburyport, 1; Somerville, 1; total, 5.

*Smallpox* was reported from Belmont, 1; Boston, 3; Framingham, 1; Gloucester, 2; Lowell, 1; Ludlow, 3; total, 11.

*Tetanus* was reported from Dedham, 1.

*Trachoma* was reported from Boston, 3; Lawrence, 1; Newton, 1; total, 5.

*Trichinosis* was reported from Boston, 1.

## *Distribution.*

### *All Communicable Diseases.*

| | June, 1919. | June, 1918. |
|---|---|---|
| Total cases, | 5,716 | 9,030 |
| Case rate per 100,000 population, | 145.8 | 230.3 |

### *Certain Prevalent Diseases.*

| | June, 1919. | June, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | |
| Total cases, | 483 | 473 | Dracut, (0) 8<br>Orange, (1) 7 |
| Case rate per 100,000 population, | 12.1 | 12.1 | |
| Measles: — | | | |
| Total cases, | 891 | 3,663 | Westport, (0) 28<br>Saugus, (0) 25<br>Weston, (3) 18<br>Northborough, (0) 18<br>Webster, (0) 13<br>Leominster, (3) 32<br>Winchendon, (1) 19 |
| Case rate per 100,000 population, | 22.3 | 93.4 | |
| Scarlet fever: — | | | |
| Total cases, | 492 | 287 | Foxborough, (0) 6<br>Gloucester, (0) 17<br>Westford, (0) 6<br>Ayer, (0) 13<br>South Hadley, (1) 8 |
| Case rate per 100,000 population, | 12.3 | 7.4 | |
| Typhoid fever: — | | | |
| Total cases, | 45 | 64 | |
| Case rate per 100,000 population, | 1.1 | 1.6 | |
| Whooping cough: — | | | |
| Total cases, | 467 | 829 | Oak Bluffs, (0) 13<br>Braintree, (1) 16<br>Haverhill, (5) 36<br>Salisbury, (0) 29<br>Worcester, (5) 44<br>Ayer, (0) 9<br>Pittsfield, (5) 53 |
| Case rate per 100,000 population, | 11.7 | 21.1 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, | 693 | 764 | |
| Case rate per 100,000 population, | 17.3 | 19.5 | |
| Tuberculosis, other forms: — | | | |
| Total cases, | 77 | 54 | |
| Case rate per 100,000 population, | 1.9 | 1.4 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,991,969 | 794 | **2** | 659 | **64** | 20 | **18** | 48 | – | 588 | **354** | 778 | **21** |
| 2 | Cities over 200,000. | | | | | | | | | | | | | |
| 3 | Boston, | 808,442 | 215 | – | 206 | **21** | 7 | **6** | 5 | – | 199 | **89** | 42 | – |
| 4 | Cities, 150,000–200,000. | | | | | | | | | | | | | |
| 5 | Worcester, | 176,761 | 6 | **1** | 40 | **3** | 1 | – | 1 | – | 19 | **23** | 126 | **6** |
| 6 | Cities 100,000–150,000. | *687,463* | *119* | – | *118* | *11* | *3* | *4* | *13* | – | *117* | *55* | *341* | *6* |
| 7 | Fall River, | 129,416 | 14 | – | 16 | **1** | – | – | 2 | – | 23 | **10** | 236 | **6** |
| 8 | New Bedford, | 120,438 | 14 | – | 8 | – | 1 | **1** | 1 | – | 11 | **8** | 8 | – |
| 9 | Springfield, | 114,792 | 44 | – | 18 | **5** | – | **1** | 3 | – | 46 | **16** | 2 | – |
| 10 | Cambridge, | 112,176 | 30 | – | 20 | – | – | **1** | 2 | – | 12 | **7** | 26 | – |
| 11 | Lowell, | 109,396 | 5 | – | 36 | **3** | – | – | – | – | 6 | **8** | 19 | – |
| 12 | Lynn, | 101,245 | 12 | – | 20 | **2** | 2 | **1** | 5 | – | 19 | **6** | 50 | – |
| 13 | Cities, 50,000–100,000. | *478,422* | *94* | *1* | *74* | *7* | *1* | *2* | *7* | – | *61* | *36* | *26* | *1* |
| 14 | Somerville, | 94,950 | 10 | – | 31 | **1** | – | – | 1 | – | 7 | **4** | 14 | – |
| 15 | Lawrence, | 93,933 | 1 | – | 9 | **1** | 1 | – | – | – | 8 | **4** | – | – |
| 16 | Brockton, | 66,824 | 19 | – | 12 | **1** | – | – | 1 | – | 6 | **4** | – | – |
| 17 | Holyoke, | 63,413 | 5 | – | 6 | **2** | – | – | – | – | 3 | **8** | – | – |
| 18 | Haverhill, | 53,940 | 40 | – | 10 | **1** | – | – | – | – | 24 | **6** | 2 | – |
| 19 | Malden, | 52,669 | 2 | **1** | 5 | – | – | – | 4 | – | 5 | **6** | 6 | – |
| 20 | Chelsea, | 52,663 | 17 | – | 1 | **1** | – | **2** | 1 | – | 8 | **4** | 4 | **1** |
| 21 | Cities and Towns 25,000–50,000. | *500,608* | *153* | – | *68* | *8* | – | – | *3* | – | *54* | *42* | *61* | *6* |
| 22 | Quincy, | 47,433 | 6 | – | 2 | – | – | – | – | – | 3 | **4** | 1 | – |
| 23 | Pittsfield, | 45,907 | 5 | – | – | **1** | – | – | – | – | 10 | **7** | – | – |
| 24 | Newton, | 45,895 | 43 | – | 7 | **1** | – | – | 2 | – | 8 | **6** | 3 | – |
| 25 | Salem, | 42,292 | 9 | – | 13 | – | – | – | – | – | 6 | **1** | 1 | – |
| 26 | Everett, | 41,282 | 43 | – | 17 | **1** | – | – | – | – | 2 | **2** | 16 | **1** |
| 27 | Fitchburg, | 41,196 | 4 | – | 5 | – | – | – | – | – | 7 | **3** | 8 | – |
| 28 | Brookline, | 38,287 | 31 | – | 2 | – | – | – | – | – | 4 | **1** | 12 | – |
| 29 | Taunton, | 37,761 | 1 | – | 1 | – | – | – | – | – | 1 | **5** | 18 | **4** |
| 30 | Medford, | 36,702 | 1 | – | 3 | – | – | – | 1 | – | 3 | **5** | 2 | **1** |
| 31 | Chicopee, | 34,124 | – | – | 6 | **1** | – | – | – | – | 2 | **3** | – | – |
| 32 | Waltham, | 32,107 | 6 | – | 6 | **2** | – | – | – | – | 2 | **2** | – | – |
| 33 | Revere, | 31,035 | – | – | 6 | – | – | – | – | – | – | **1** | – | – |
| 34 | Beverly, | 26,587 | 4 | – | – | **2** | – | – | – | – | 6 | **2** | – | – |
| 35 | Cities and Towns 10,000–25,000. | *597,915* | *122* | – | *96* | *7* | *4* | *2* | *9* | – | *85* | *58* | *85* | *1* |
| 36 | Gloucester, | 24,545 | – | – | 2 | – | – | – | – | – | 3 | **1** | 1 | – |
| 37 | Northampton, | 23,526 | – | – | 3 | **1** | – | – | – | – | 3 | **3** | – | – |
| 38 | North Adams, | 22,048 | – | – | 1 | – | – | – | – | – | 3 | **5** | – | – |
| 39 | Peabody, | 21,070 | 3 | – | – | **1** | – | – | – | – | – | – | 9 | – |
| 40 | Westfield, | 20,402 | 1 | – | 5 | – | – | – | – | – | 8 | **1** | 2 | – |
| 41 | Attleboro, | 20,386 | – | – | 3 | – | – | – | – | – | 1 | **2** | – | – |
| 42 | Watertown, | 19,579 | 2 | – | 1 | – | – | – | 2 | – | 6 | **1** | 4 | – |
| 43 | Framingham, | 18,310 | 3 | – | 2 | – | – | – | – | – | – | – | – | – |
| 44 | Arlington, | 18,004 | 5 | – | 2 | – | 1 | – | – | – | 1 | **1** | – | – |
| 45 | Melrose, | 17,860 | 3 | – | 1 | – | – | – | – | – | 1 | **2** | 3 | – |
| 46 | Gardner, | 17,786 | 6 | – | 1 | – | – | – | – | – | 2 | **2** | 1 | – |
| 47 | Leominster, | 17,701 | 5 | – | 3 | – | – | **1** | 2 | – | 7 | **4** | 50 | **1** |
| 48 | Woburn, | 17,336 | 3 | – | 1 | – | – | – | – | – | 4 | **4** | – | – |
| 49 | Methuen, | 16,161 | 2 | – | 1 | – | – | – | – | – | 4 | **1** | – | – |
| 50 | Marlborough, | 15,814 | 14 | – | 4 | – | – | – | 5 | – | – | – | 3 | – |
| 51 | Newburyport, | 15,614 | 26 | – | 1 | – | – | – | – | – | 7 | **5** | 5 | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Common-
correction, these deaths, while approximately correct, are not absolutely complete.

## TO THE PUBLIC HEALTH,[1] MARCH, 1919.

| 38A | | 38B | | 75A | | 19C | | 7 | | 28-29 | | 30-35 | | 1 | | 38C | | 37 | | 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Trachoma. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 117 | – | 31 | – | 3 | – | 265 | 2 | 719 | 19 | 686 | 460 | 63 | 48 | 46 | 6 | 1010 | 1 | 498 | 30 | 457 | 31 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 38 | – | 11 | – | 1 | – | 86 | – | 221 | 3 | 226 | 100 | 15 | 14 | 7 | – | 402 | – | 191 | 8 | 55 | 4 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 2 | – | – | – | – | – | 2 | – | 23 | 1 | 31 | 22 | – | – | – | – | 41 | – | 30 | 1 | 8 | 3 | 5 |
| *44* | – | *5* | – | *1* | – | *25* | *1* | *74* | *7* | *137* | *85* | *16* | *12* | *6* | *2* | *191* | *1* | *93* | *5* | *55* | *5* | 6 |
| 11 | – | 2 | – | – | – | 6 | – | 2 | – | 33 | 12 | 1 | 2 | 1 | 1 | 21 | – | 8 | – | 18 | 2 | 7 |
| 18 | – | 3 | – | – | – | 6 | – | 9 | – | 51 | 15 | 3 | 2 | 2 | – | 45 | – | 27 | – | 6 | 1 | 8 |
| 5 | – | – | – | – | – | 2 | – | 12 | – | 12 | 15 | 6 | 3 | – | – | 49 | – | 18 | 1 | 5 | – | 9 |
| 3 | – | – | – | – | – | 10 | – | 7 | – | 12 | 21 | 2 | – | 1 | – | 21 | – | 22 | 2 | 20 | – | 10 |
| 6 | – | – | – | 1 | – | 1 | 1 | 26 | – | 18 | 13 | 2 | 4 | 1 | – | 42 | – | 11 | 2 | 2 | – | 11 |
| 1 | – | – | – | – | – | – | – | 18 | 7 | 11 | 9 | 2 | 1 | 1 | 1 | 13 | 1 | 7 | – | 4 | 2 | 12 |
| *15* | – | *8* | – | *1* | – | *14* | *1* | *98* | *1* | *65* | *47* | *10* | *5* | *11* | *2* | *89* | – | *46* | – | *39* | *2* | 13 |
| 2 | – | – | – | 1 | – | 5 | 1 | 28 | – | 12 | 7 | 2 | – | 1 | – | 14 | – | 4 | – | 5 | 1 | 14 |
| – | – | – | – | – | – | 5 | – | 6 | – | 15 | 21 | 2 | 1 | 8 | 2 | 6 | – | 10 | – | 4 | – | 15 |
| 2 | – | 4 | – | – | – | – | – | 13 | – | 14 | 4 | 2 | 2 | – | – | 15 | – | 8 | – | – | – | 16 |
| 3 | – | – | – | – | – | – | – | 27 | 1 | 2 | 6 | – | 1 | – | – | 6 | – | 2 | – | 2 | – | 17 |
| 1 | – | 1 | – | – | – | 2 | – | 3 | – | 10 | 4 | 1 | – | 1 | – | 37 | – | 18 | – | 24 | 1 | 18 |
| 3 | – | – | – | – | – | 2 | – | 12 | – | 8 | 2 | 2 | 1 | – | – | 3 | – | – | – | 3 | – | 19 |
| 4 | – | 3 | – | – | – | – | – | 9 | – | 4 | 3 | 1 | – | 1 | – | 8 | – | 4 | – | 1 | – | 20 |
| *6* | – | *2* | – | – | – | *22* | – | *104* | *1* | *72* | *47* | *4* | *3* | *9* | *1* | *58* | – | *21* | *5* | *78* | *11* | 21 |
| – | – | – | – | – | – | – | – | 8 | – | 6 | – | – | – | 1 | – | 10 | – | 4 | – | 3 | 1 | 22 |
| – | – | – | – | – | – | 17 | – | 7 | 1 | 6 | 5 | – | – | 2 | – | 7 | – | 2 | – | 2 | – | 23 |
| 1 | – | – | – | – | – | 2 | – | – | – | 9 | 5 | 2 | – | 1 | – | 1 | – | 2 | – | – | – | 24 |
| – | – | – | – | – | – | – | – | 43 | – | 4 | 5 | – | – | – | – | 6 | – | – | 1 | 46 | 6 | 25 |
| – | – | – | – | – | – | 2 | – | 11 | – | 7 | 5 | – | – | 2 | – | 9 | – | 2 | – | 1 | 1 | 26 |
| – | – | – | – | – | – | – | – | – | – | 9 | 5 | – | 1 | – | – | 5 | – | 2 | – | – | – | 27 |
| – | – | – | – | – | – | 1 | – | 4 | – | 4 | 2 | – | – | 1 | – | 2 | – | 2 | – | 4 | – | 28 |
| – | – | – | – | – | – | – | – | 3 | – | 3 | 7 | – | – | – | – | 10 | – | 5 | 4 | 2 | – | 29 |
| 3 | – | – | – | – | – | – | – | 3 | – | 1 | 3 | 1 | – | – | – | 3 | – | – | – | 3 | 1 | 30 |
| 1 | – | – | – | – | – | – | – | 2 | – | 9 | 2 | – | 1 | – | – | 1 | – | – | – | – | 1 | 31 |
| 1 | – | 1 | – | – | – | – | – | 8 | – | 9 | 4 | – | 1 | – | – | 2 | – | 1 | – | – | – | 32 |
| – | – | – | – | – | – | – | – | 15 | – | 2 | 2 | – | – | 1 | 1 | 2 | – | – | – | – | – | 33 |
| – | – | 1 | – | – | – | – | – | – | – | 3 | 2 | 1 | – | 1 | – | – | – | 1 | – | 17 | 1 | 34 |
| *7* | – | *4* | – | – | – | *54* | – | *105* | *6* | *77* | *55* | *8* | *9* | *4* | – | *136* | – | *48* | *4* | *149* | *3* | 35 |
| – | – | – | – | – | – | – | – | 16 | 2 | 10 | 4 | 1 | – | – | – | 3 | – | 1 | – | – | – | 36 |
| – | – | – | – | – | – | – | – | 5 | 1 | 3 | 7 | – | 1 | 1 | – | 7 | – | – | 2 | – | – | 37 |
| – | – | – | – | – | – | – | – | 1 | – | 5 | 1 | – | 1 | – | – | – | – | – | – | 1 | – | 38 |
| – | – | – | – | – | – | – | – | 1 | – | 2 | 1 | – | – | – | – | 3 | – | – | – | 7 | – | 39 |
| 1 | – | – | – | – | – | – | – | 17 | – | 3 | 6 | – | – | – | – | 6 | – | 1 | – | – | – | 40 |
| – | – | – | – | – | – | – | – | 1 | – | 2 | – | – | – | – | – | 1 | – | 2 | – | 13 | – | 41 |
| – | – | – | – | – | – | 2 | – | 2 | – | 1 | – | 1 | – | – | – | 8 | – | – | – | 3 | – | 42 |
| – | – | – | – | – | – | – | – | – | – | 5 | – | – | 2 | – | – | 76 | – | 31 | – | – | – | 43 |
| – | – | – | – | – | – | – | – | – | – | 3 | 1 | – | – | – | – | 1 | – | 1 | – | 2 | – | 44 |
| 1 | – | – | – | – | – | – | – | 9 | 1 | 2 | – | – | – | – | – | 1 | – | 1 | – | – | – | 45 |
| – | – | – | – | – | – | 1 | – | – | – | 2 | 2 | – | – | – | – | 2 | – | – | – | 6 | – | 46 |
| – | – | 2 | – | – | – | – | – | 2 | – | 7 | 1 | – | – | 1 | – | 4 | – | – | – | 20 | – | 47 |
| – | – | – | – | – | – | – | – | – | – | 3 | 3 | – | – | – | – | 1 | – | – | – | 27 | – | 48 |
| 2 | – | – | – | – | – | 2 | – | 4 | – | 1 | 2 | – | – | – | – | 1 | – | – | – | 3 | – | 49 |
| – | – | – | – | – | – | – | – | 1 | – | 3 | – | – | – | – | – | – | – | – | – | – | – | 50 |
| – | – | – | – | – | – | 1 | – | 3 | – | 1 | 4 | – | – | – | – | – | – | – | 1 | – | – | 51 |

wealth. Owing to the delay by physicians in returning death certificates sent them for addition and

## Cases and Deaths from Diseases Dangerous

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | 4 | – | 2 | – | – | – | – | – | – | 2 | – | – |
| 53 | Winthrop, | 14,968 | 1 | – | 2 | – | – | – | – | – | 3 | 2 | – | – |
| 54 | Weymouth, | 14,874 | – | – | 1 | – | – | – | – | – | 5 | 2 | – | – |
| 55 | Greenfield, | 14,466 | 1 | – | 17 | – | 1 | – | – | – | 4 | 2 | – | – |
| 56 | Milford, | 14,214 | 3 | – | 3 | – | – | – | – | – | – | 1 | – | – |
| 57 | Wakefield, | 13,939 | 7 | – | – | – | – | – | – | – | – | – | – | – |
| 58 | Plymouth, | 13,587 | 2 | – | – | – | – | – | – | – | – | 1 | – | – |
| 59 | Norwood, | 13,472 | – | – | – | – | – | – | – | – | 3 | 4 | 1 | – |
| 60 | Webster, | 13,453 | 1 | – | 2 | 1 | – | – | – | – | – | – | – | – |
| 61 | Adams, | 13,378 | – | – | – | – | – | – | – | – | – | 2 | – | – |
| 62 | Clinton, | 13,289 | – | – | 3 | 1 | 1 | 1 | – | – | – | 1 | – | – |
| 63 | West Springfield, | 13,119 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 64 | Danvers, | 12,663 | 6 | – | 11 | – | – | – | – | – | 3 | 1 | – | – |
| 65 | Dedham, | 12,524 | 1 | – | 6 | – | 1 | – | – | – | – | 1 | – | – |
| 66 | Natick, | 12,175 | 4 | – | – | – | – | – | – | – | 5 | 2 | 2 | – |
| 67 | Saugus, | 12,061 | 1 | – | 11 | 2 | – | – | – | – | 2 | 1 | 1 | – |
| 68 | Easthampton, | 10,956 | – | – | – | – | – | – | – | – | – | – | – | – |
| 69 | Athol, | 10,831 | 1 | – | – | – | – | – | – | – | 2 | 3 | 1 | – |
| 70 | Bridgewater, | 10,807 | 4 | – | – | – | – | – | – | – | 2 | – | – | – |
| 71 | Winchester, | 10,590 | 7 | – | – | – | – | – | – | – | 2 | – | – | – |
| 72 | Braintree, | 10,417 | 3 | – | 2 | – | – | – | – | – | 2 | – | – | – |
| 73 | Belmont, | 10,219 | 3 | – | 3 | – | – | – | – | – | 2 | 1 | 2 | – |
| 74 | Palmer, | 10,191 | – | – | 1 | 1 | – | – | – | – | – | – | – | – |
| 75 | Towns, 5,000–10,000. | *342,000* | *55* | – | *24* | *2* | *1* | *2* | *4* | – | *16* | *22* | *40* | – |
| 76 | Towns, 2,500–5,000. | *155,565* | *26* | – | *9* | *1* | *2* | *2* | *3* | – | *10* | *10* | *22* | – |
| 77 | Towns under 2,500. | *211,793* | *90* | – | *15* | *8* | *1* | – | *3* | – | *13* | *20* | *34* | *1* |
| 78 | State Infirmary, | – | – | – | *4* | *1* | – | – | – | – | *6* | *5* | *1* | – |
| 79 | Camp Devens, | – | *1* | – | *5* | – | – | – | – | – | *8* | *3* | – | – |

In addition to the above there occurred 2 cases of anterior poliomyelitis, 1 in Boston and 1 in Milford, malaria, 1 in Brockton and 1 in Chelsea; 2 cases of pellagra, 1 in Haverhill and 1 in Melrose; 19 cases of 1 in Melrose, 1 in Natick, 1 in Newburyport and 1 in Peabody, with 1 death in Wakefield; 7 cases of small-

## TO THE PUBLIC HEALTH — Concluded.

| 38A<br>Ophthalmia Neonatorum. |  | 38B<br>Suppurative Conjunctivitis. |  | 75A<br>Trachoma. |  | 19C<br>Mumps. |  | 7<br>Scarlet Fever. |  | 28–29<br>Tuberculosis, Pulmonary. |  | 30–35<br>Tuberculosis, Other Forms. |  | 1<br>Typhoid Fever. |  | 38C<br>Gonorrhœa. |  | 37<br>Syphilis. |  | 8<br>Whooping Cough. |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| – | – | – | – | – | – | 2 | – | – | – | 1 | 1 | – | – | – | – | 3 | – | 1 | – | – | – | 52 |
| – | – | – | – | – | – | 20 | – | 5 | – | – | – | – | – | – | – | 3 | – | – | 1 | – | – | 53 |
| – | – | – | – | – | – | – | – | 1 | – | 2 | 1 | – | – | 2 | – | – | – | – | – | 3 | – | 54 |
| – | – | 1 | – | – | – | – | – | – | – | 3 | 1 | 1 | – | – | – | – | – | 1 | – | – | – | 55 |
| – | – | – | – | – | – | 8 | – | 3 | 1 | 1 | 4 | 1 | 3 | – | – | – | – | – | – | – | – | 56 |
| – | – | – | – | – | – | 1 | – | 11 | 1 | – | – | – | – | – | – | – | – | – | – | 2 | – | 57 |
| – | – | – | – | – | – | – | – | – | – | 1 | 4 | – | – | – | – | 1 | – | 1 | – | – | – | 58 |
| – | – | – | – | – | – | – | – | 1 | – | 3 | – | – | – | – | – | – | – | – | – | – | – | 59 |
| 1 | – | 1 | – | – | – | – | – | – | – | 3 | 3 | – | 1 | – | – | 2 | – | 1 | – | – | – | 60 |
| 1 | – | – | – | – | – | – | – | – | – | 1 | 2 | – | – | – | – | – | – | – | – | – | – | 61 |
| – | – | – | – | – | – | – | – | – | – | 4 | 2 | 1 | – | – | – | – | – | – | – | – | – | 62 |
| – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 63 |
| – | – | – | – | – | – | – | – | – | – | 1 | 2 | 1 | 1 | – | – | 2 | – | 4 | – | 36 | 3 | 64 |
| – | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | 1 | – | – | – | 1 | – | 65 |
| – | – | – | – | – | – | 5 | – | 3 | – | 1 | – | 1 | – | – | – | 1 | – | – | – | – | – | 66 |
| – | – | – | – | – | – | – | – | 8 | – | 1 | – | – | – | – | – | 1 | – | 1 | – | 3 | – | 67 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 68 |
| – | – | – | – | – | – | – | – | 1 | – | – | 1 | – | – | – | – | 1 | – | 1 | – | – | – | 69 |
| – | – | – | – | – | – | – | – | 1 | – | 1 | 1 | – | – | – | – | – | – | 1 | – | – | – | 70 |
| 1 | – | – | – | – | – | – | – | 2 | – | 1 | – | – | – | – | – | 2 | – | – | – | – | – | 71 |
| – | – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | 2 | – | – | – | 2 | – | 72 |
| – | – | – | – | – | – | 10 | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | 20 | – | 73 |
| – | – | – | – | – | – | 2 | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 74 |
| *2* | – | *1* | – | – | – | *12* | – | *39* | – | *27* | *17* | *5* | *1* | – | – | *33* | – | *16* | *1* | *30* | *1* | 75 |
| *1* | – | – | – | – | – | *25* | – | *26* | – | *21* | *20* | *2* | *1* | *6* | *1* | *4* | – | *2* | – | *32* | *2* | 76 |
| *1* | – | – | – | – | – | *12* | – | *26* | – | *11* | *39* | – | *1* | *1* | – | *6* | – | *3* | – | *11* | – | 77 |
| *1* | – | – | – | – | – | – | – | – | – | *19* | *27* | – | *2* | – | – | *27* | – | *10* | *5* | – | – | 78 |
| – | – | – | – | – | – | *10* | – | *3* | – | – | *1* | – | – | *2* | – | *23* | – | *35* | *1* | – | – | 79 |

with 1 death in Boston; 1 case of anthrax in Lynn; 1 death from dysentery in Fall River; 2 deaths from septic sore throat. 6 in Boston, 1 in Brookline, 3 in Chelsea, 1 in Dedham, 2 in Fall River, 2 in Haverhill, pox, 6 in Boston and 1 in Everett; 1 death from tetanus in Peabody: and 2 cases of trichinosis in Boston.

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,991,969 | 762 | – | 532 | **41** | 31 | **23** | 60 | – | 463 | **287** | 1045 | **19** |
| 2 | CITIES OVER 200,000. | | | | | | | | | | | | | |
| 3 | Boston, | 808,442 | 220 | – | 130 | **6** | 11 | **10** | 7 | – | 180 | **71** | 43 | – |
| 4 | CITIES, 150,000–200,000. | | | | | | | | | | | | | |
| 5 | Worcester, | 176,761 | 7 | – | 32 | **2** | 2 | **1** | 2 | – | 8 | **15** | 182 | **2** |
| 6 | CITIES, 100,000–150,000. | *687,463* | *140* | – | *91* | *13* | – | *1* | *14* | – | *84* | *52* | *466* | *14* |
| 7 | Fall River, | 129,416 | 28 | – | 15 | **3** | – | – | 1 | – | 22 | **7** | 247 | **10** |
| 8 | New Bedford, | 120,438 | 14 | – | 3 | – | – | **1** | 2 | – | 8 | **7** | 26 | **1** |
| 9 | Springfield, | 114,792 | 60 | – | 19 | **6** | – | – | 6 | – | 26 | **15** | 6 | **1** |
| 10 | Cambridge, | 112,176 | 26 | – | 11 | – | – | – | 2 | – | 16 | **9** | 39 | – |
| 11 | Lowell, | 109,396 | 7 | – | 30 | **3** | – | – | – | – | 1 | **6** | 40 | **1** |
| 12 | Lynn, | 101,245 | 5 | – | 13 | **1** | – | – | 3 | – | 11 | **8** | 108 | **1** |
| 13 | CITIES, 50,000–100,000. | *478,422* | *79* | – | *47* | *2* | *4* | *3* | *5* | – | *55* | *33* | *19* | – |
| 14 | Somerville, | 94,950 | 13 | – | 17 | **1** | 1 | **1** | – | – | 17 | **10** | 7 | – |
| 15 | Lawrence, | 93,933 | 5 | – | 7 | **1** | – | – | – | – | 4 | **6** | 1 | – |
| 16 | Brockton, | 66,824 | 17 | – | 4 | – | 1 | **1** | – | – | 3 | **3** | 2 | – |
| 17 | Holyoke, | 63,413 | 1 | – | 2 | – | – | – | 2 | – | 3 | **5** | 1 | – |
| 18 | Haverhill, | 53,940 | 22 | – | 11 | – | – | – | 2 | – | 20 | **3** | 4 | – |
| 19 | Malden, | 52,669 | 9 | – | 6 | – | 1 | – | – | – | 2 | **4** | – | – |
| 20 | Chelsea, | 52,663 | 12 | – | – | – | 1 | **1** | 1 | – | 6 | **2** | 4 | – |
| 21 | CITIES AND TOWNS, 25,000–50,000. | *500,608* | *124* | – | *82* | *4* | *5* | *3* | – | – | *28* | *33* | *111* | *2* |
| 22 | Quincy, | 47,433 | 24 | – | 9 | – | – | – | – | – | – | **3** | – | – |
| 23 | Pittsfield, | 45,907 | 9 | – | 1 | – | – | – | – | – | 1 | **4** | – | – |
| 24 | Newton, | 45,895 | 13 | – | 11 | – | 1 | – | – | – | – | **3** | 6 | – |
| 25 | Salem, | 42,292 | 15 | – | 18 | **1** | – | – | – | – | 3 | **3** | – | – |
| 26 | Everett, | 41,282 | 10 | – | 6 | – | 2 | **1** | – | – | 6 | **2** | 8 | – |
| 27 | Fitchburg, | 41,196 | 9 | – | 4 | **2** | – | – | – | – | 2 | – | 1 | – |
| 28 | Brookline, | 38,287 | 21 | – | 6 | – | 1 | **1** | – | – | 8 | **3** | 31 | – |
| 29 | Taunton, | 37,761 | – | – | 5 | – | – | – | – | – | 3 | **5** | 63 | **2** |
| 30 | Medford, | 36,702 | 3 | – | 6 | – | – | – | – | – | 3 | **2** | 2 | – |
| 31 | Chicopee, | 34,124 | – | – | 9 | **1** | – | **1** | – | – | 1 | **3** | – | – |
| 32 | Waltham, | 32,107 | 17 | – | 1 | – | – | – | – | – | – | **2** | – | – |
| 33 | Revere, | 31,035 | – | – | 5 | – | – | – | – | – | – | **3** | – | – |
| 34 | Beverly, | 26,587 | 3 | – | 1 | – | 1 | – | – | – | 1 | – | – | – |
| 35 | CITIES AND TOWNS, 10,000–25,000. | *597,915* | *101* | – | *83* | *10* | *2* | *3* | *18* | – | *65* | *31* | *66* | *1* |
| 36 | Gloucester, | 24,545 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 37 | Northampton, | 23,526 | 7 | – | 2 | – | – | – | – | – | 6 | **4** | 5 | – |
| 38 | North Adams, | 22,048 | – | – | – | **1** | – | – | – | – | – | – | – | – |
| 39 | Peabody, | 21,070 | 3 | – | – | – | – | – | – | – | 1 | – | 5 | – |
| 40 | Westfield, | 20,402 | – | – | 9 | **2** | – | – | – | – | 5 | – | – | – |
| 41 | Attleboro, | 20,386 | 2 | – | 4 | – | – | – | – | – | – | – | 1 | – |
| 42 | Watertown, | 19,579 | 7 | – | 1 | – | 1 | – | – | – | 2 | – | 4 | – |
| 43 | Framingham, | 18,310 | 5 | – | – | **1** | – | – | – | – | 2 | **1** | 1 | – |
| 44 | Arlington, | 18,004 | – | – | 1 | – | – | – | – | – | 1 | – | – | – |
| 45 | Melrose, | 17,860 | 2 | – | – | – | – | – | – | – | – | – | 3 | – |
| 46 | Gardner, | 17,786 | 8 | – | – | – | 1 | **1** | – | – | 2 | **1** | 1 | – |
| 47 | Leominster, | 17,701 | 4 | – | 1 | – | – | – | – | – | 5 | **2** | 20 | **1** |
| 48 | Woburn, | 17,336 | 3 | – | – | – | – | – | – | – | 2 | **2** | – | – |
| 49 | Methuen, | 16,161 | 2 | – | 3 | – | – | – | – | – | 5 | **3** | – | – |
| 50 | Marlborough, | 15,814 | 10 | – | 4 | **1** | – | – | – | – | 1 | **2** | 3 | – |
| 51 | Newburyport, | 15,614 | 14 | – | – | – | – | – | 12 | – | 3 | – | 5 | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Common-
correction, these deaths, while approximately correct, are not absolutely complete.

## TO THE PUBLIC HEALTH,[1] APRIL, 1919.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28-29 Tuberculosis, Pulmonary. | | 30-35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 130 | – | 46 | – | 12 | – | 346 | 3 | 715 | 16 | 666 | 409 | 69 | 85 | 44 | 3 | 818 | 1 | 419 | 20 | 379 | 28 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 49 | – | 13 | – | 5 | – | 81 | – | 208 | 7 | 213 | 103 | 19 | 21 | 9 | 1 | 362 | – | 199 | 9 | 49 | 1 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 7 | – | 4 | – | 1 | – | 3 | – | 18 | 2 | 30 | 18 | 1 | 5 | 1 | – | 38 | – | 45 | 1 | 13 | 1 | 5 |
| *39* | – | *16* | – | *2* | – | *21* | – | *82* | *2* | *112* | *75* | *14* | *18* | *6* | – | *140* | – | *61* | *3* | *53* | *4* | 6 |
| 13 | – | 7 | – | 1 | – | 5 | – | 6 | – | 25 | 18 | 4 | 6 | 3 | – | 28 | – | 9 | 1 | 12 | 1 | 7 |
| 14 | – | 1 | – | – | – | 2 | – | 17 | 1 | 23 | 14 | 6 | 5 | 1 | – | 25 | – | 10 | – | 9 | 1 | 8 |
| 1 | – | 1 | – | – | – | – | – | 8 | – | 16 | 6 | – | – | – | – | 41 | – | 24 | 1 | – | – | 9 |
| 2 | – | 1 | – | 1 | – | 8 | – | 12 | – | 24 | 22 | 1 | – | 1 | – | 18 | – | 5 | – | 30 | – | 10 |
| 6 | – | 6 | – | – | – | 6 | – | 22 | 1 | 11 | 13 | 1 | 4 | – | – | 16 | – | 4 | – | – | 1 | 11 |
| 3 | – | – | – | – | – | – | – | 17 | – | 13 | 2 | 2 | 3 | 1 | – | 12 | – | 9 | 1 | 2 | 1 | 12 |
| *17* | – | *4* | – | *2* | – | *20* | *1* | *98* | *1* | *85* | *49* | *9* | *9* | *12* | *1* | *63* | – | *26* | *1* | *77* | *3* | 13 |
| – | – | 2 | – | – | – | 4 | – | 23 | – | 13 | 7 | 2 | 1 | 3 | – | 7 | – | 5 | – | 3 | – | 14 |
| – | – | – | – | 1 | – | 4 | – | 14 | – | 19 | 18 | 1 | 3 | 6 | 1 | 6 | – | 2 | – | 6 | 1 | 15 |
| 6 | – | 1 | – | – | – | – | – | 22 | – | 9 | 5 | 2 | 3 | – | – | 7 | – | 5 | 1 | – | – | 16 |
| – | – | – | – | – | – | – | – | 17 | – | 7 | 5 | – | 1 | – | – | 6 | – | 2 | – | – | 1 | 17 |
| 5 | – | – | – | – | – | 1 | – | 2 | – | 18 | 5 | 1 | – | 2 | – | 25 | – | 6 | – | 62 | 1 | 18 |
| 2 | – | – | – | – | – | 9 | – | 11 | 1 | 9 | 5 | – | – | 1 | – | 4 | – | 1 | – | 2 | – | 19 |
| 4 | – | 1 | – | 1 | – | 2 | 1 | 9 | – | 10 | 4 | 3 | 1 | – | – | 8 | – | 5 | – | 4 | – | 20 |
| *8* | – | *2* | – | *1* | – | *45* | *1* | *94* | *1* | *76* | *30* | *8* | *13* | *5* | *1* | *42* | – | *36* | *3* | *48* | *8* | 21 |
| 1 | – | – | – | – | – | 4 | – | 7 | – | 5 | 2 | – | 2 | 1 | – | 6 | – | 1 | – | – | 1 | 22 |
| 1 | – | – | – | – | – | 37 | – | 4 | – | 12 | 1 | 1 | 1 | 1 | – | 7 | – | 2 | – | 6 | – | 23 |
| – | – | – | – | – | – | 3 | 1 | 3 | – | 1 | – | 1 | – | – | – | 3 | – | 2 | – | 2 | – | 24 |
| – | – | 1 | – | – | – | – | – | 27 | 1 | 7 | 7 | 1 | 1 | – | – | – | – | 2 | – | 25 | 4 | 25 |
| 1 | – | – | – | – | – | – | – | 12 | – | 5 | 2 | – | – | 1 | 1 | 6 | – | 3 | – | – | – | 26 |
| – | – | – | – | 1 | – | – | – | 3 | – | 4 | 4 | 1 | 1 | – | – | 3 | – | 4 | – | – | – | 27 |
| – | – | – | – | – | – | 1 | – | 9 | – | 5 | 1 | – | 1 | 1 | – | 2 | – | 1 | – | 2 | – | 28 |
| – | – | – | – | – | – | – | – | 4 | – | 11 | 4 | 1 | 3 | – | – | 7 | – | 3 | 3 | – | – | 29 |
| 1 | – | 1 | – | – | – | – | – | 2 | – | 3 | – | 2 | 3 | 1 | – | 3 | – | 2 | – | 2 | 3 | 30 |
| – | – | – | – | – | – | – | – | 2 | – | 12 | 5 | – | – | – | – | 2 | – | 3 | – | – | – | 31 |
| 3 | – | – | – | – | – | – | – | 8 | – | 3 | 2 | 1 | 1 | – | – | 1 | – | 1 | – | 4 | – | 32 |
| 1 | – | – | – | – | – | – | – | 13 | – | 4 | 1 | – | – | – | – | 1 | – | 2 | – | – | – | 33 |
| – | – | – | – | – | – | – | – | – | – | 4 | 1 | – | – | – | – | 1 | – | – | – | 7 | – | 34 |
| *6* | – | *3* | – | *1* | – | *64* | *1* | *109* | *1* | *70* | *48* | *10* | *14* | *9* | – | *99* | *1* | *22* | *1* | *67* | *7* | 35 |
| – | – | – | – | – | – | – | – | 15 | – | 10 | 1 | – | 1 | – | – | 5 | – | 2 | – | – | – | 36 |
| 1 | – | – | – | – | – | 2 | – | 6 | – | 2 | 3 | – | – | – | – | 3 | – | – | 1 | – | – | 37 |
| – | – | – | – | – | – | 1 | – | – | – | 5 | 1 | – | – | – | – | 5 | – | – | – | – | – | 38 |
| 1 | – | – | – | – | – | – | – | 1 | – | 4 | 2 | – | – | – | – | 1 | – | – | – | 2 | 1 | 39 |
| – | – | – | – | – | – | 1 | – | 15 | – | 4 | 4 | – | 1 | – | – | 4 | – | – | – | – | – | 40 |
| – | – | – | – | – | – | – | – | 1 | – | 2 | 1 | – | – | – | – | 2 | – | – | – | 3 | 1 | 41 |
| – | – | – | – | – | – | 2 | – | 1 | – | 1 | – | – | 1 | 1 | – | 2 | – | – | – | 1 | – | 42 |
| – | – | – | – | – | – | – | – | 2 | – | 3 | 1 | – | – | – | – | 33 | – | 7 | – | 1 | – | 43 |
| – | – | – | – | – | – | – | – | 2 | – | – | 1 | 1 | – | – | – | 1 | – | – | – | 2 | – | 44 |
| – | – | – | – | – | – | 1 | – | 2 | – | 1 | 1 | – | – | – | – | 1 | – | – | – | 3 | – | 45 |
| – | – | – | – | – | – | 8 | – | – | – | 6 | 4 | – | – | – | – | 3 | – | – | – | – | – | 46 |
| – | – | – | – | – | – | – | – | – | – | 5 | 2 | – | – | – | – | 2 | 1 | – | – | 16 | 1 | 47 |
| – | – | – | – | – | – | 1 | – | 1 | – | 1 | 2 | – | – | 1 | – | 2 | – | 1 | – | 8 | 1 | 48 |
| – | – | – | – | – | – | – | – | 2 | – | 1 | – | – | – | 1 | – | – | – | – | – | – | – | 49 |
| – | – | 1 | – | – | – | – | – | – | – | 4 | 1 | – | 1 | – | – | – | – | – | – | – | – | 50 |
| – | – | – | – | – | – | – | 1 | – | – | 1 | – | 1 | 1 | 2 | – | 5 | – | – | – | 2 | – | 51 |

wealth. Owing to the delay by physicians in returning death certificates sent them for addition and

## Cases and Deaths from Diseases Dangerous

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. |  | 9 Diphtheria. |  | 61A Ep. Cerebrospinal Meningitis. |  | 19B German Measles. |  | 92 Lobar Pneumonia. |  | 6 Measles. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | – | – | 1 | – | – | – | – | – | – | 1 | 1 | – |
| 53 | Winthrop, | 14,968 | 1 | – | 2 | – | – | – | 4 | – | 5 | – | – | – |
| 54 | Weymouth, | 14,874 | 1 | – | – | – | – | 1 | – | – | 5 | 2 | 1 | – |
| 55 | Greenfield, | 14,466 | 1 | – | 9 | – | – | – | 1 | – | 3 | 2 | 1 | – |
| 56 | Milford, | 14,214 | – | – | 3 | – | – | 1 | – | – | – | 3 | – | – |
| 57 | Wakefield, | 13,939 | 1 | – | – | – | – | – | – | – | 2 | – | – | – |
| 58 | Plymouth, | 13,587 | 4 | – | – | – | – | – | – | – | 1 | – | – | – |
| 59 | Norwood, | 13,472 | 4 | – | 2 | – | – | – | – | – | 1 | 1 | – | – |
| 60 | Webster, | 13,453 | 1 | – | 2 | 1 | – | – | – | – | 2 | – | 8 | – |
| 61 | Adams, | 13,378 | – | – | 6 | – | – | – | – | – | 2 | 1 | – | – |
| 62 | Clinton, | 13,289 | – | – | 2 | 1 | – | – | – | – | – | – | 1 | – |
| 63 | West Springfield, | 13,119 | – | – | 2 | – | – | – | – | – | – | 1 | – | – |
| 64 | Danvers, | 12,663 | 1 | – | 3 | – | – | – | – | – | – | – | – | – |
| 65 | Dedham, | 12,524 | – | – | 2 | – | – | – | – | – | 2 | – | – | – |
| 66 | Natick, | 12,175 | 1 | – | 1 | – | – | – | – | – | – | – | 1 | – |
| 67 | Saugus, | 12,061 | 1 | – | 12 | – | – | – | 1 | – | – | 1 | 3 | – |
| 68 | Easthampton, | 10,956 | – | – | 3 | 1 | – | – | – | – | 1 | – | – | – |
| 69 | Athol, | 10,831 | – | – | – | – | – | – | – | – | 1 | 1 | – | – |
| 70 | Bridgewater, | 10,807 | 3 | – | – | – | – | – | – | – | – | – | – | – |
| 71 | Winchester, | 10,590 | 3 | – | – | – | – | – | – | – | 1 | – | – | – |
| 72 | Braintree, | 10,417 | – | – | 2 | – | – | – | – | – | 1 | – | – | – |
| 73 | Belmont, | 10,219 | 10 | – | – | – | – | – | – | – | 1 | 2 | 2 | – |
| 74 | Palmer, | 10,191 | 2 | – | 5 | 2 | – | – | – | – | 2 | 1 | – | – |
| 75 | Towns, 5,000–10,000. | *342,000* | *63* | – | *29* | *2* | *1* | – | *3* | – | *16* | *15* | *47* | – |
| 76 | Towns, 2,500–5,000. | *188,565* | *8* | – | *10* | *1* | – | – | *1* | – | *10* | *17* | *60* | – |
| 77 | Towns under 2,500. | *211,793* | *16* | – | *21* | *1* | *3* | *1* | – | – | *4* | *16* | *51* | – |
| 78 | State Infirmary, | – | *1* | – | *3* | – | – | – | – | – | *3* | *3* | – | – |
| 79 | Camp Devens, | – | *3* | – | *4* | – | *3* | *1* | *10* | – | *10* | *1* | – | – |

In addition to the above, there was one case of actinomycosis in Boston; 4 cases of anterior poliomyelitis, bite, 1 in Attleboro, 2 in Dighton, 1 in Lowell, 1 in Middleborough, 1 in Rehoboth, 1 in Somerset and 1 in deaths from pellagra, 1 in Haverhill and 1 in Taunton; 4 deaths from septic sore throat in Newburyport; 2 in New Bedford and 1 in Quincy, with 4 deaths, 1 in Braintree, 1 in Dracut, 1 in Easthampton and

## TO THE PUBLIC HEALTH — Concluded.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28–29 Tuberculosis, Pulmonary. | | 30–35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| – | – | – | – | – | – | – | – | – | – | 1 | 1 | – | – | – | – | 8 | – | – | – | – | – | 52 |
| – | – | – | – | – | – | 13 | – | 7 | 1 | – | – | 1 | 1 | – | – | 1 | – | – | – | – | – | 53 |
| – | – | – | – | – | – | – | – | 1 | – | – | 3 | 1 | – | – | – | 3 | – | – | – | – | – | 54 |
| 1 | – | – | – | – | – | – | – | 2 | – | 2 | 1 | – | 1 | – | – | 2 | – | 1 | – | – | – | 55 |
| 1 | – | – | – | – | – | 15 | – | 15 | – | – | 1 | 1 | – | 1 | – | – | – | – | – | – | – | 56 |
| – | – | – | – | – | – | – | – | 2 | – | – | 2 | – | 1 | – | – | – | – | – | – | – | – | 57 |
| – | – | – | – | – | – | – | – | 1 | – | 4 | – | – | – | – | – | – | – | 1 | – | – | – | 58 |
| – | – | – | – | 1 | – | – | – | 2 | – | – | – | – | – | – | – | – | – | – | – | 1 | – | 59 |
| – | – | – | – | – | – | – | – | 2 | – | 2 | 2 | 1 | – | – | – | – | – | – | – | – | – | 60 |
| 1 | – | 1 | – | – | – | – | – | – | – | – | 1 | – | – | 2 | – | – | – | – | – | – | – | 61 |
| – | – | – | – | – | – | – | – | 4 | – | 1 | 2 | – | 2 | – | – | 1 | – | 1 | – | – | – | 62 |
| – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 63 |
| – | – | – | – | – | – | 1 | – | 1 | – | 2 | 4 | – | 1 | – | – | – | – | 3 | – | 10 | 1 | 64 |
| – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | – | 2 | – | 2 | – | – | – | 65 |
| – | – | – | – | – | – | 1 | – | 1 | – | 4 | – | – | 1 | 1 | – | 5 | – | 2 | – | – | – | 66 |
| – | – | – | – | – | – | 1 | – | 4 | – | 1 | – | – | 1 | – | – | 1 | – | 1 | – | 5 | 1 | 67 |
| – | – | – | – | – | – | – | – | – | – | 2 | 2 | – | – | – | – | – | – | – | – | – | – | 68 |
| – | – | – | – | – | – | – | – | – | – | – | 2 | – | – | – | – | 1 | – | – | – | – | 1 | 69 |
| – | – | 1 | – | – | – | – | – | 8 | – | – | 2 | 4 | – | – | – | 2 | – | – | – | – | – | 70 |
| 1 | – | – | – | – | – | 2 | – | 3 | – | – | – | – | – | – | – | 1 | – | 1 | – | – | – | 71 |
| – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | – | 2 | – | – | – | – | – | 72 |
| – | – | – | – | – | – | 14 | – | 1 | – | 1 | – | – | – | – | – | – | – | – | – | 13 | – | 73 |
| – | – | – | – | – | – | 1 | – | 2 | – | – | 1 | – | 1 | – | – | – | – | – | – | – | – | 74 |
| *3* | – | *1* | – | – | – | *31* | – | *64* | *1* | *45* | *20* | *3* | *1* | *1* | – | *29* | – | *9* | *1* | *23* | *2* | 75 |
| – | – | *1* | – | – | – | *60* | – | *26* | – | *13* | *12* | *2* | – | – | – | *6* | – | – | – | *24* | *1* | 76 |
| *1* | – | *2* | – | – | – | *9* | – | *9* | *1* | *9* | *35* | *1* | *2* | *1* | – | *5* | – | *3* | *1* | *24* | *1* | 77 |
| – | – | – | – | – | – | – | – | – | – | *13* | *16* | *2* | *1* | – | – | *10* | – | *2* | – | *1* | – | 78 |
| – | – | – | – | – | – | *12* | – | *7* | – | – | *3* | – | *1* | – | – | *24* | – | *26* | – | – | – | 79 |

1 in Abington, 1 in Boston, 1 in Lawrence and 1 in Lowell; 1 case of anthrax in Woburn; 8 cases of dog Worcester; 1 case of dysentery at Camp Devens; 3 cases of malaria, 2 in Boston and 1 in Wayland; 2 6 cases of smallpox, 3 in Boston, 1 in Gloucester and 2 in Springfield; and 4 cases of tetanus, 1 in Braintree, 1 in New Bedford.

# MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

Commissioner of Health, Eugene R. Kelley, M.D.

## Public Health Council.

Eugene R. Kelley, M.D., *Chairman.*

| | |
|---|---|
| Wm. T. Sedgwick, Ph.D. | Joseph E. Lamoureux, M.D. |
| George C. Whipple, S.B. | Wm. J. Gallivan, M.D. |
| David L. Edsall, M.D. | Warren C. Jewett. |

| | |
|---|---|
| Division of Administration, . . . | —— —— |
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## State District Health Officers.

| | |
|---|---|
| The Southeastern District, . . . | Charles W. Milliken, M.D., Barnstable. |
| The Eastern District, . . . . | Russell B. Sprague, M.D., Boston. |
| The Northeastern District, . . . | Lyman A. Jones, M.D., Swampscott. |
| The North Midland District, . . . | Charles E. Simpson, M.D., Lowell. |
| The South Midland District, . . . | Arthur A. Brown, M.D., Worcester. |
| The Wachusett District, . . . . | Francis A. Finnigan, M.D., Fitchburg. |
| The Connecticut Valley District, . . | George T. O'Donnell, M.D., Springfield. |
| The Berkshire District, . . . . | James A. Keenan, M.D., Pittsfield.[1] |

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[1] Temporary acting.

# THE COMMONHEALTH

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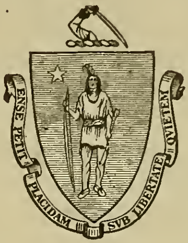
Sept.-Oct., 1919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## BI-MONTHLY BULLETIN

MASSACHUSETTS
STATE DEPARTMENT OF HEALTH

EUGENE R. KELLEY, M.D., Commissioner

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# TUBERCULOSIS FROM THE ANGLE OF AN EXPERT.[1]

By Edward O. Otis, M.D., President of the Massachusetts Tuberculosis League.

In the first place let me ask, Why do we spend so much time and money on tuberculosis? Of course you all know that the reason is the extent of tuberculosis in this State, and in every State, and the expense incident to the prevention of it and the care of those incapacitated by it and those left helpless. So far as the health authorities are concerned in this State, it is an economic problem. The humanitarian side of the problem comes in as well, but it is first of all for the State a problem of economics, a problem of how to save the State the enormous amount of money it is expending for the care, prevention and protection of the tuberculous cases and also how to save the State the value of the work of those persons who are incapacitated or who die from this disease. Tuberculosis, as we know, is most prevalent at the very best time of the individual's life, from early youth to middle age; and when a man is incapacitated from tuberculosis that means so much less to the State in the man's earning power. Furthermore, if the wage earner is incapacitated that leaves in many cases his wife and children to be supported by the State, for instance by The Mothers' Aid, and that is another expense for the State; so that when you consider the expense for the prevention, care and protection of tuberculous cases and the care of the dependents because of the wage earner's being incapacitated, you can readily see it is a very large expense to the State, and it is therefore primarily an economic problem of the first importance.

Let me say right here that when we speak of tuberculosis we mean clinical or active tuberculosis. It is supposed that almost all of us have received some tuberculous infection some time in childhood. We know this because the Von Pirquet reaction in children between three and ten or fifteen years of age is almost always positive and this shows there is some tuberculous infection. The infection may never become active and we may never know there has been tuberculous infection, but when it becomes active it is clinical or active tuberculosis and that is what we commonly mean by tuberculosis. Here is an illustration: Some time ago our X-ray specialist at the Boston Dispensary said he would like to get a plate of a perfectly sound lung so that he could have it for comparison. One of the doctors said, "Take me, my lungs are sound." He did so and found a shadow which proved there was some latent or inactive tuberculosis. It did not make him sick but simply showed that he had had at some time or other a tuberculous infection.

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[1] Read at a District Health Officers' meeting, July 3, 1919.

In the examinations for tuberculosis in the Army, we divided the men into classes and eliminated cases of active tuberculosis, which were few, and also certain cases that were inactive, more or less extensive, not because the men were unable to pursue their civil occupations, but because it meant that under the stress of war conditions the latent or inactive tuberculosis, if extensive, might become active and therefore it was not safe for the man to go into the Army.

If it is true that all tuberculous infection takes place in early youth or in childhood as I have said, then the active tuberculosis which occurs later on is the aggravation or the waking up, or becoming active, of the previous infection which was inactive.

So you see the matter of tuberculosis, when we look at it from the standpoint of prevention and cure, is primarily an economic factor and of so great importance that the State and the communities are wisely using every effort to detect and prevent it in order to save this large amount of money for which we are all taxed.

Now as to the public health angles as regards tuberculosis as seen by the tuberculosis expert. There are two: (1) the discovery and disposition of active tuberculosis, and (2) its prevention.

First of all we have got to find it out. How can we discover tuberculosis? There are three general instrumentalities for doing this. I will mention, first, by means of dispensaries. Every city of 10,000 inhabitants and over in the State is obliged to have a dispensary for the purpose of discovering tuberculosis. How efficient these dispensaries are I do not know or how well they are conducted I do not know. A great deal depends upon the physician in charge and a great deal upon the community to see that they are made as effective as possible. A good dispensary is one of the first agencies in finding out whether or not tuberculosis exists. There are two difficulties in connection with these State dispensaries: (1) I doubt whether the physicians are paid sufficient salaries; and (2) it is hard to obtain a physician with the amount of expert knowledge which renders him capable of detecting early tuberculosis.

Another way of discovering tuberculosis which we have just instituted in the Massachusetts Tuberculosis League is by having expert consultants, which means that we pick out experts and send them around to different portions of the State to work in conjunction with the physician. We have begun this work in Barnstable County where they have inaugurated a new county tuberculosis hospital. The superintendent of the hospital is sometimes free from his immediate duties and we have arranged to have him go over that section of the State, to this town and that town, consulting with physicians and aiding them in the detection of tuberculosis. He is a sort of itinerant consultant. I believe this has been tried out in Virginia and Michigan and some other States. We hope that great benefit will come from this experiment. This is just the beginning, as far as the Massachusetts Tuberculosis League is concerned, and we hope to do the same thing in other parts of the State.

Another most important factor in discovering tuberculosis is the private physician. The majority of cases, in all probability, come to the private physician, and the accusation is made over and over again that he does not detect the early cases of tuberculosis. In many cases the criticism is undeserved, for it is very difficult sometimes to detect the early cases and it often-times takes a good while to make a diagnosis, and he is not perhaps as much to blame as he has been thought to be. At the same time, as I have said, a large majority of people probably go to the private physician, and he must discover the early case of tuberculosis if it is discovered. I believe that the general practitioner might receive valuable instruction in the early diagnosis of tuberculosis if he could be connected with one of our State sanatoria for a short period of intensive study.

We have learned from our war experiences what intensive training can do. We needed at once a large number of experts in various departments and how did we get them? The government gave the men what they called intensive training by experts and it seems to me the State might do this in connection with the State sanatoria, and perhaps there will be an opportunity to do this when the tuberculosis hospitals come under the State Department of Health as is proposed. The State might inaugurate intensive training schools for the physicians in the vicinity of these various State sanatoria for a week or two, arranging to give the physicians lodging and board. There the physicians could meet the experts who have charge of the sanatoria and could see cases and learn a great deal in the matter of early diagnosis. There are, therefore, these three principle ways of discovering tuberculosis, — the State dispensaries, the expert itinerant consultants and the private physicians.

In regard to the prevention of tuberculosis. The matter of infection

I have spoken of, but I would like to speak of another point about infection and that is the care of the children. With our present knowledge it is believed that a new infection does not so frequently take place in an adult life. Colonel Bushnell of the United States Army Medical Department said at the conference at Atlantic City that it was almost impossible to receive a new infection, unless it was a very massive one, and that did not happen often, but that when it occurred in the adult it was generally a reawakening of the early childhood infection; therefore you can see at once the value of the care of the child. The child should be so nurtured and watched over that it will arrive at adult life strong and vigorous and there will be less opportunity for the development of clinical or active tuberculosis; accordingly school inspection is a very important factor in the prevention of tuberculosis. If the school inspection is carried out faithfully so that every child receives, as is the case in Boston, a careful general physical examination by a skillful physician, any case of active tuberculosis can be detected, for the chance of recovery or arrest in childhood is very much greater than in the case of adults; therefore you can see how important it is to protect the child so that his early infection may not become active in later life, and one means is efficient school inspection which ought to exist all over the State so that at least once a year a perfectly thorough examination of each child can be made.

We can practice prevention directly and indirectly, — directly by controlling, so far as we can, the active or open cases of tuberculosis that exist. We do that in our sanatoria and hospitals. We also control those cases in the homes under supervision of nurses, social workers, physicians or health officers. We had great hopes at the time the sanatoria were being established in the various States that they would do a great deal toward lessening the amount of tuberculosis, but we have found that has not been the case. The sanatorium does not prevent tuberculosis as we thought it would do, and, moreover, we are realizing that there are fewer permanent cures than we expected, so we are beginning to believe that about all the State sanatoria can do in the time the patients are there is to start them on the road to recovery and teach them how to care for themselves. They learn by practice in the State sanatoria how to live wholesome, healthy lives and so far as possible they are taught to carry out the instructions when they return home. We are, however, finding many cases of relapse for the reason that the patients do not or cannot carry out the instructions. They cannot stay at the sanatoria long enough and are often obliged to go home and work, and often under the same poor conditions as before they went away, so that the disease recurs. We may say a case of tuberculosis is arrested, that is, the physical symptoms and signs have disappeared and the patient seems to be well, but there is always a possibility that the disease may recur.

A writer in an English journal recently in giving his experience says, "I am well so far as I know and I am following the instructions I learned at the sanatorium but I feel that the damned thing may return at any time." Past experience has shown that the patients must be supervised by the health officers, the dispensary or the visiting nurses after their return from the sanatoria.

There are also the indirect methods of preventing tuberculosis which are coming to the fore. Up to this time we have been fighting tuberculosis by the direct method, trying to overcome and cure the infection, but if this infection is as world wide as the human race then that is impossible, so what we have got to do is to prevent the seed from flowering, prevent tuberculosis infection from coming to a head. To do this all lines of health work must be co-ordinated and employed. We have got to join forces with all other health efforts. We know perfectly well the need of better housing conditions and labor conditions, sufficient time for rest and recreation, and the need of nutrition, which is now being studied under the auspices of the Massachusetts Tuberculosis League. We are taking children at the Boston Consumptives Hospital Out-Patient Department with inactive or latent tuberculosis and studying their nutrition. We give them a little book and ask them to write out what they have had for breakfast, dinner and supper for two or three days and then we compare it with the proper food which the children ought to have. They are taught how to obtain this proper food and the mothers are taught how to prepare it. The matter of nutrition is a very important one, and although there is a great deal still to learn on this subject we have found out much more than we had known about it before, but it is still somewhat a matter of guesswork, and we are finding something new about it all the time. Rest will do a great deal in the prevention of tuberculosis, also fresh air. We now have open-air schools and more open windows in the homes. There was a time when people thought the night air was bad, but in the cities at least it is better than day air because there is not so much dust in it. In the treatment of many cases at home, and the majority of them have to be treated at home, the families find they can utilize the piazzas or have an outdoor sleeping porch even in the poorer homes for the tuberculous inmate.

The children's crusade in the schools, which is being carried on by the Massachusetts Tuberculosis League, where the children are asked to perform certain health duties daily and receive certain rewards for it, is a splendid thing. It teaches them to live wholesome lives. All of these matters in general health work lead to the prevention of tuberculosis because, as I have said, frequently the first symptoms that you get from the patient are that he has felt tired for a long time and used up, and these symptoms are the results of bad housing conditions, overwork, bad air and under nourishment, etc. This means that we have got to work along all these lines as well as in the direct campaign against tuberculosis.

Now when we find a case of tuberculosis, the disposition of it is the next thing to be considered. My procedure at the dispensary is to consult with my social worker, and she goes to the home of the patient and finds out how many children he has and how much salary, housing conditions, etc., and we advise accordingly. In many cases we find the intelligence of the patient is such that he can take the treatment at home, or, again, if conditions at home are such that home treatment cannot be arranged, we advise the patient to go to a sanatorium and we make an application for his entrance. If he is unable to pay, the town from which he comes will pay the cost; and if he has a wife and children, there is The Mothers' Aid to help out. The patient stays there as long as he can or as long as the authorities think he needs treatment and then goes home, but we do not lose track of him then. Our social worker goes to his house and he is urged to come back to the dispensary to be examined frequently. In other words, we follow him up and that is a most important work; it saves money. You spend a good deal of money to get a patient to the sanatorium, and if he comes home and goes back into the same physical conditions as before, the money is lost and his labor is also lost.

The State cannot do everything and it ought not to be expected to do everything. A little while ago in Akron, Ohio, a large tire company there, I believe, employed five full-time physicians to look over their employees; and a good many establishments are employing efficient physicians to examine the new workmen to see if they are all right, and the employees are supervised by physicians paid by the employers. If a case of tuberculosis develops, some industrial establishments send the employee to a sanatorium and pay the expense.

The visiting nurse or social worker is a very important aid in the after-care of these cases of tuberculosis and in the prevention of it among children. Not only should the individual who has tuberculosis be kept under observation but all the children and members of the household should be examined. If we find a case of tuberculosis in a household we urge that the children and other inmates come to the dispensary and be examined to see that no other cases exist in the family.

Dr. Kelley has told us that in the last year or two tuberculosis has been increasing in Massachusetts in spite of all we can do. The reason perhaps you can tell as well as I. On account of the high wages people have kept at work even though they felt they should go to a sanatorium, and others, perhaps on account of the economies that had to be practiced during the war, have suffered from lack of proper food. It is a curious fact that the sanatoria have not been filled during the last year for the first time in their history.

I have briefly outlined some of the principles which the health officer, visiting nurse and social worker should have to guide them in tuberculosis work. The more tuberculosis we discover and prevent the more we reduce the expense of the State. In the first place we must know how to discover it at an early stage when it is more curable, and, secondly, we must provide for the cases that need provision for both their sakes and for the protection of others in the State. These are the great principles upon which you as health officers and public health nurses should work for the care of tuberculosis in this State.

## NOTES ON PUBLIC HEALTH NURSING FIGURES.[1]

By Blanche Wildes, R.N., Chief, Subdivision of Public Health Nursing, Massachusetts State Department of Health.

THE accompanying figures give an approximation of the public health nursing facilities in Massachusetts. Because of the constant addition of industrial nurses, and because of the appointments of other public health nurses from time to time, all of these figures are continually subject to change.

Certain conclusions may be drawn from our figures: —

1. While the proportion of towns in the State not touched by public health nursing service is 53.38 per cent, the proportion of the population not so covered is but 6.95 per cent, an indication that our small, sparsely populated towns are not receiving the attention they require.

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[1] It should be stated that all figures have been taken directly from data furnished by the eight District Health Officers of the State up to Aug. 1, 1919. Population figures are those estimated for 1919.

2. To approach the minimum standards set by the Washington Child Welfare Conference, our figures, notably the total of but 64 part-time prenatal nurses, the 115 full-time school nurses, and the 106 full-time child welfare nurses, show the need of more intensive effort in the creation of additional public health positions.

A more detailed account of actual conditions will follow later when there has been an opportunity to study them at first hand, which is obviously the only satisfactory way to make any serious study. This survey will necessarily extend over quite a period of time; it is hoped that the time so spent will add value to the sum total of information on Massachusetts nursing affairs.

*Number of Towns having Nursing Service.*

| DISTRICT. | Total Number of Towns. | Towns having Nursing Service. | Towns having No Nursing Service. | Proportion of Towns covered by Nursing Service (Per Cent). | Proportion of Towns not covered by Nursing Service (Per Cent). |
|---|---|---|---|---|---|
| 1, | 52 | 19 | 33 | 36.53 | 63.46 |
| 2, | 49 | 32 | 17 | 65.30 | 34.69 |
| 3, | 40 | 26 | 14 | 65.00 | 35.00 |
| 4, | 35 | 19 | 16 | 54.28 | 45.71 |
| 5, | 37 | 21 | 16 | 56.75 | 43.24 |
| 6, | 40 | 17 | 23 | 42.50 | 57.50 |
| 7, | 47 | 15 | 32 | 31.91 | 68.08 |
| 8, | 54 | 16 | 38 | 29.62 | 70.37 |
| Totals, | 354 | 165 | 189 | 46.61+ | 53.38+ |

*Public Health Nursing Service by Districts.*

| DISTRICT. | Total Population. | Population covered by Public Health Nursing. | Population not covered by Public Health Nursing. | Per Cent covered by Public Health Nursing. | Per Cent not covered by Public Health Nursing. |
|---|---|---|---|---|---|
| 1, | 436,876 | 377,248 | 59,628 | 86.35 | 13.65 |
| 2,[1] | 1,679,036 | 1,641,213 | 37,823 | 97.74[1] | 2.26 |
| 3, | 613,548 | 577,135 | 36,413 | 94.06 | 5.94 |
| 4, | 535,639 | 499,163 | 36,476 | 93.18 | 6.82 |
| 5, | 368,244 | 330,711 | 37,533 | 89.53 | 10.47 |
| 6, | 171,040 | 142,704 | 28,336 | 83.43 | 16.56 |
| 7, | 368,827 | 332,870 | 35,957 | 90.27 | 9.73 |
| 8, | 163,265 | 134,513 | 28,752 | 82.38 | 17.62 |
| Totals, | 4,336,475 | 4,035,557 | 300,918 | 93.05 | 6.95 |

[1] In District 2, population covered by public health nursing, exclusive of Boston, is 870,594; 31 towns, or 51.85 per cent of population.

*Type of Work done and Time spent by Public Health Nurses in Massachusetts.*

| TYPE OF WORK. | Proportion of Time. | NUMBER OF NURSES IN HEALTH DISTRICTS. | | | | | | | | Totals. |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | |
| Tuberculosis, . . . . . | Full time | 4 | 33 | 7 | 3 | 4 | 3 | 4 | 3 | 61 |
| | Part time | 14 | 22 | 16 | 14 | 15 | 9 | 9 | 8 | 107 |
| Prenatal, . . . . . | Full time | – | 1 | – | – | – | – | – | – | 1 |
| | Part time | 22 | 7[1] | 9 | 4 | 4 | 5 | 9 | 4 | 64 |
| Child welfare (exclusive of children of school age), . . | Full time | 10 | 39 | 15 | 12 | 5 | 7 | 10 | 8 | 106 |
| | Part time | 16 | 8 | 9 | 8 | 11 | 7 | 14 | 6 | 79 |
| School, . . . . . . | Full time | 8 | 65 | 15 | 8 | 4 | 2 | 12 | 1 | 115 |
| | Part time | 11 | 2 | 9 | 8 | 6 | 10 | 4 | 1 | 51 |
| Bedside, . . . . . . | Full time | 5 | 25 | 22 | 7 | 9 | 12 | 1 | 8 | 89 |
| | Part time | 23 | 109 | 3 | 10 | 7 | 12 | 7 | 5 | 176 |
| Industrial, . . . . . | Full time | 26 | 44 | 10 | 37 | 17 | 11 | 29 | 10 | 184 |
| | Part time | – | – | – | – | – | – | – | – | – |
| Metropolitan, . . . . . | Full time | 1 | 26 | 2 | 2 | – | – | 1 | 3 | 35 |
| Affiliation, Visiting Nursing Association, . . . . . | Part time | 9 | 4 | 19 | 10 | 15 | 11 | 12 | 8 | 88 |
| Total full-time public health nurses, . . . . . | | – | – | – | – | – | – | – | – | 591 |
| Nongraduates included in above figures, . . . . . . | – – | – | 3 | 5 | 1 | 3 | 1 | 3 | – | 16 |
| Total full-time public health nurses, exclusive of nongraduate nurses, . . | – – | – | – | – | – | – | – | – | – | 575 |

[1] Exclusive of Boston. The bulk of the prenatal work in Boston is conducted by the Instructive District Nursing Association, whose nurses do prenatal visiting as a part of their regular duties. Work for the Boston City Hospital is done through their social workers, and for the Lying-in Hospital by a nurse-social worker. Local organizations provide relatively few prenatal nurses.

Of the 165 cities and towns in the State having some public health nursing service, 21 are doing no tuberculosis work; 109 are doing no prenatal work; 83 are doing no child welfare work (including baby hygiene); 72 are doing no school work; 46, no bedside work; 119, no industrial nursing; and 85, no Metropolitan nursing.

## THE CAMBRIDGE SUMMER OPEN-AIR SCHOOL.

BY MABEL GREELEY SMITH, EXECUTIVE SECRETARY, CAMBRIDGE ANTI-TUBERCULOSIS ASSOCIATION.

OPEN-AIR schools have been an important part of the Cambridge public school system since 1910, when, on April 13, the first school of this type was opened in a remodeled dwelling house, with 14 pupils, 1 teacher, a matron, and a school nurse to devise and supervise routine work in personal hygiene. The Cambridge Anti-Tuberculosis Association initiated the movement for this first open-air school and assisted the school committee in the experiment by providing food and special equipment, such as cots, blankets, heavy coats, toothbrushes, etc. The experiment was so successful that at the beginning of the next term the school committee assumed the entire support of the school and extended the work until Cambridge now has four open-air schools which care for more than 150 children.

The superintendent of schools and the school committee have shown so much vision in developing this highly constructive work as a definite part of the public school system that it was only to be expected that when in the spring of 1917 the Anti-Tuberculosis Association proposed a summer open-air school they would see in the suggestion the next step in their already excellent program for caring for the physically subnormal school child.

It is well known that such children lose during the hot summer months much, if not all, that they have gained in the open-air classes during the school year. It was to bridge this gap that the summer open-air school was projected.

The superintendent of schools was ready with a splendid plan for this extension of school and health work. He proposed using the Haggerty School, a modern school building equipped with shower baths, kitchen, and a large hall for play and rest periods on rainy days. Its location at the edge of a large park, with its groves and pond, afforded beautiful and very suitable surroundings for the work of such a school. The school department agreed to provide the school building, teachers, matrons and janitor; the board of health offered school nurses; and the Anti-Tuberculosis Association promised food and transportation for the children. It was necessary to provide transportation, for the children were to be taken from all parts of the city.

The school was popular with parents and children from the beginning, and was so successful that it has become an important part of summer work for children in Cambridge.

The third summer open-air school has just ended. Nearly 200 physically handicapped children spent a happy, profitable summer at this school, growing in health and in wisdom in many worth-while subjects that are crowded out of our regular school curriculum. Many hospitals, private physicians and welfare agencies applied for the admission of children in whom they were interested.

## The First Step, a Physical Examination.

During the first week the children were given a physical examination and were weighed and measured. With but few exceptions they were found to be from 5 to 25 pounds below normal weight. Their physical defects included adenoids, asthma, bronchitis, chorea (old cases), dental caries, ear and eye troubles, heart trouble of different types, infantile paralysis (old cases), kidney trouble, malnutrition, pediculosis, rickets, ringworm, scabies, spinal curvature, tuberculous glands, tuberculous hips, enlarged or diseased tonsils, and ptosis. Many children had not only one but several of the above defects.

## What was done about it.

The task of correcting these defects was begun. The nurses did valiant work in eradicating pediculosis, scabies and ringworm, and in improving personal hygiene. The proper use of the wash cloth and toothbrush was demonstrated individually and daily. The use of the Modern Health Crusaders chore card for each child assisted in systematizing and establishing daily health habits.

One hundred and thirty-four visits to the dentist left very little dental work undone at the end of the term. Twenty-four children were relieved of their adenoids and diseased tonsils. Malnutrition was so successfully treated at the school that the majority of the children were brought up to normal weight. The greatest gain among the boys was 13 pounds, 13 ounces; among the girls, 14 pounds, 15 ounces. Treatment for other defects was given at various hospitals. Children who needed further treatment at the close of the summer school will be followed up through the regular schools.

Practically all of the children needed special training in posture. Because the relation of posture to health is now well recognized, it was a great satisfaction to note the marked improvement in the posture habits of the children at the close of the school. This was accomplished by means of individual and group exercises directed by a special teacher of physical education, and carried into all of the activities of the school by the regular teachers.

## Daily Program.

Opening of school. Roll call.
Assembly in hall. Setting-up drill.
Physical instruction. Shower baths.
Milk.
Supervised play, nature walks.
Optional: academic work, knitting, basketry.

Noon toilet.
Dinner.
Tooth brush drill.
Story hour, talks on personal hygiene, etc.
Rest period. (In pine grove in fair weather; in hall on stormy days.)
Games, walks, etc.
Grouping for transportation.
Milk.
Dismissal.

### Menu.

Monday: Tomato and macaroni, nut chocolate, bread and butter, milk.
Tuesday: Vegetable stew, rice and raisins, bread and butter, milk.
Wednesday: Baked beans, prunes, bread and butter, milk.
Thursday: Potato soup, chocolate blanc mange, bread and butter, milk.
Friday: Fish chowder, peanut butter sandwiches, bread and butter, milk.

The Federal Bureau of Education says "the physical impairment of the coming generation is one of the most disastrous by-products of the Great War." Fortunately most of the physical impairment of childhood can be corrected. With good physical examination of school children it is easily discovered, and in our open-air health schools we have the means not only of bringing our physically handicapped children up to a normal standard of health, but of demonstrating to parents and to the community how simple and how easily obtainable in every home are the essentials that spell health.

There is probably no city or town which, through a co-operative plan, could not maintain one or more of these schools. Let us have more of them.

## THE CAMPAIGN AGAINST CANCER.

By Edward Reynolds, M.D., Chairman, Board of Directors, American Society for the Control of Cancer.

DURING the last few years both the Federal and many State boards of health have devoted an increasing attention to the campaign against the prevalence of cancer. This is founded on the now prevalent belief that the enormous mortality of this disease is susceptible of large decrease by thorough education of the laity and the profession to the latest views on diagnosis and early treatment. In this movement Massachusetts took an early part, and it is gratifying to learn that an inquiry made by Mr. Frederick L. Hoffman, statistician, The Prudential Insurance Company of America, at the request of the American Society for the Control of Cancer, has resulted in a report that a decrease in cancer mortality is already noticeable in the localities in which propaganda has been most active.

Two items in the present activities in this campaign in the State are especially worth mentioning. The first is the free diagnosis of pathological specimens which is offered to the profession of the State by the Harvard Commission for Cancer Research through the Commissioner of Health. Any surgeon who forwards a pathological specimen removed by operation and suspected of malignancy to the Director of the State Diagnosis Service, Cancer Commission, Medical School of Harvard University, Building E, Longwood Avenue, Boston, will receive a report founded on an authoritative microscopical examination. It is always desirable that a specimen so removed should be submitted to an immediate frozen section examination and that if malignant tissue is found the radical operation should be performed under the same anæsthesia, since this procedure yields a less percentage of recurrences than is obtained when the pathological examination and the radical operation are separated by even a few days, but circumstances not infrequently render this practically impossible in localities away from a center; and since it not infrequently happens that careful examination of a supposedly benign growth shows the existence of malignant cells within it, it is important that every surgeon who removes even a benign new growth should avail himself of this diagnosis service. Failure to detect such malignancy robs the patient of the chances which a secondary radical operation would yield.

It is important to remember that since malignant cells may occur in apparently thoroughly benign new growths the incision for the removal of any neoplasm should go as wide as possible of the neoplasm, and that this should never be subjected to section until it has been completely removed from the wound. It should then be subjected to pathological examination by immediate examination if possible, and if not by forwarding it to the Director of the State Diagnosis Service, Cancer Commission, Harvard Medical School.

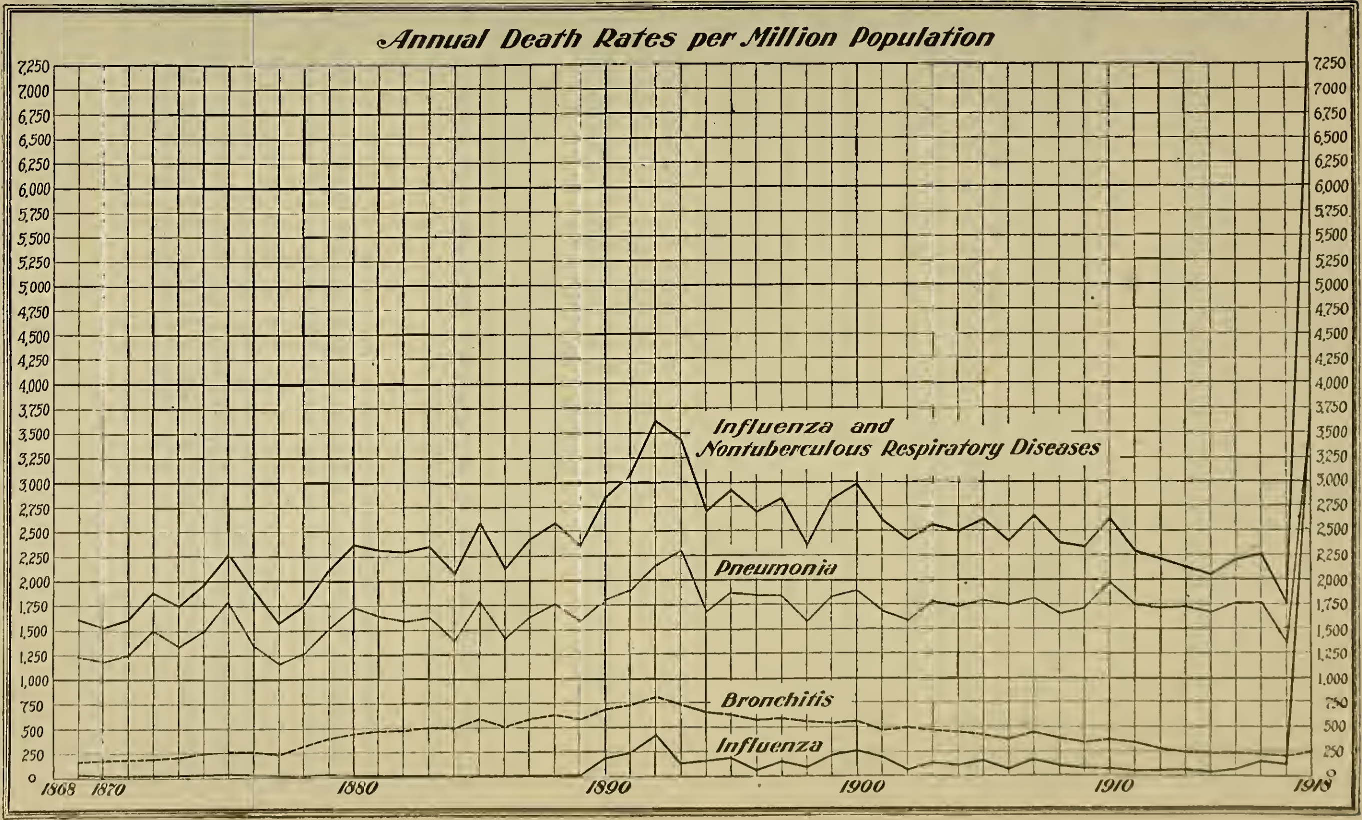
It has long been recognized that the hope of permanent cure in established malignant disease is to be found in early operation, but the last decade has seen a considerable revolution in the views of surgical authorities upon diagnosis as related to prevention of the disease and consequent decrease in its frequency and mortality. It is now recognized that the classical diagnosis of cancer which has long been taught in the schools was in fact the diagnosis of the established and too often incurable stages of the disease. Modern diagnosis demands the recognition of the earliest stages of the disease in which the hope of radical cure is still good and whenever it is possible of the pre-cancerous stage in which its prevention is obtainable. Since the signs and symptoms of the development of cancer are radically different in each of the many situations in which it may exist the diagnosis cannot be summarized, and it has been difficult for the busy practitioner to obtain the latest information. To meet this need the American Society for the Control of Cancer has prepared a handbook for the medical profession, entitled "What we know about Cancer," which it has published jointly with the Council on Health and Public Instruction of the American Medical Association.

This handbook is a pamphlet of 54 pages which gives with remarkable completeness and in clear and compact form a summary of modern views on the whole subject of malignant disease. It has brief but full sections on the diagnosis and treatment of each of its many forms and in each of their various situations. The Commissioner of Health is sending a copy of this pamphlet to every practitioner in the State in the belief not only that general dissemination of the information it contains will be of great benefit to the profession, and through it to the public, but also that this pamphlet should lie on every physician's office desk as a reference handbook which will greatly facilitate his work and add to his efficiency in dealing with malignant disease.

## INFLUENZA AND RESPIRATORY DISEASES.

The following chart showing the annual death rates from influenza and all respiratory diseases in Massachusetts for the years 1868 to 1918 is reproduced by courtesy of the Prudential Life Insurance Company of America.

# Influenza and All Respiratory Diseases
## Massachusetts, 1868–1918



# RECENT LEGISLATION.

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### General Acts, Chapter 318.

### An Act to provide for the establishment of free clinics and a registry for the feeble-minded.

*Be it enacted, etc., as follows:*

Section 1. The commission on mental diseases may establish and maintain free clinics for the feeble-minded in the districts established under section twenty-eight of chapter five hundred and four of the acts of nineteen hundred and nine, which shall be in charge of physicians of the state schools for the feeble-minded, or of such other physicians skilled in the care and treatment of the feeble-minded as may be designated by the commission. The commission may also employ such persons as may be required properly to conduct the said clinics.

Section 2. The commission shall establish and maintain a registry of the feeble-minded, and may report therefrom such statistical information as it may deem proper; but the name of any person so registered shall not be made public except to public officials or other persons having authority over the person so registered, and the records constituting the registry shall not be open to public inspection. [*Approved July 16, 1919.*

### General Acts, Chapter 317.

### An Act relative to the granting of plumbers' licenses to certain soldiers and sailors.

*Whereas*, Justice requires that the recognition of the state's obligation to her soldiers and sailors, herein contained, be accorded without delay, therefore it is hereby declared to be an emergency law, necessary for the immediate preservation of the public convenience.

*Be it enacted, etc., as follows:*

Section 1. The state examiners of plumbers are hereby directed to grant a credit of five per cent to the examination standing of each applicant who has served in the army or navy of the United States in time of war and has been honorably discharged or released from active duty. This act shall apply to all applicants for examination by them who have taken the examination subsequently to the first day of January in the year nineteen hundred and nineteen and before the date on which this act takes effect, and to all applicants whose applications are hereafter filed within one year of their discharge or release as aforesaid.

Section 2. This act shall take effect upon its passage. [*Approved July 16, 1919.*

### GENERAL ACTS, CHAPTER 360.

### AN ACT REGULATING THE SALE OF ALCOHOL.

*Whereas*, The evils sought to be remedied by this act are such as to require its operation as promptly as is consistent with justice, accordingly it is hereby declared to be an emergency law, necessary for the immediate preservation of the public safety and convenience.

*Be it enacted, etc., as follows:*

SECTION 1. No person, firm or corporation other than a registered druggist shall engage in this commonwealth in the business of manufacturing, buying, selling or dealing in methyl alcohol, or wood alcohol, so-called, or denatured alcohol, or any preparation used for manufacturing or commercial purposes which contains more than three per cent of any of the said alcohols and is intended for use other than as a beverage, without being licensed so to do by the board of health of the city or town where the business is conducted.

SECTION 2. The board of health of each city or town may issue licenses hereunder, upon the payment of a fee of one dollar, to such persons as it shall find to be properly qualified to carry on the said business. The licenses shall expire on April thirtieth of each year, and may at any time be suspended or revoked, for cause by the board. The board shall keep a record of all such licenses.

SECTION 3. Every container of methyl alcohol or wood alcohol, so-called, or denatured alcohol, shall bear a label of white paper upon which shall be printed in large red letters the words, DEADLY POISON, the name and place of business of the vendor, and the number of the vendor's license. The label shall also bear in legible type the words, NOT FOR INTERNAL USE. CAUSES BLINDNESS. KEEP FROM THE EYES.

SECTION 4. The sale of methyl alcohol, wood alcohol, denatured alcohol, or any preparation containing alcohol as described in section one, by a person not licensed as herein required, or to a minor or to any person without reasonable investigation and inquiry to determine that the same is not to be used for drinking purposes, shall constitute the offense of unlawful sale of alcohol and may be described as such in any complaint or indictment without more; but a person so charged shall be entitled to a bill of particulars in accordance with section thirty-nine of chapter two hundred and eighteen of the Revised Laws.

SECTION 5. Violation of any provision of this act shall be punished by a fine not exceeding one hundred dollars for each offense, or by imprisonment in the house of correction for a term not exceeding six months, or by both such fine and imprisonment. [*Approved July 24, 1919.*

## GENERAL ACTS, CHAPTER 351.

### AN ACT TO REGULATE THE SALE AND COLD STORAGE OF FRESH FOOD FISH.

*Be it enacted, etc., as follows:*

SECTION 1. All fresh food fish shall be graded before it is offered for sale or placed in cold storage. There shall be three grades. The first grade shall include only such fish as are known in the trade as "new fish", and fish of the first grade may be sold as "number one fish", or "shore fish", or under any other truthful designation. The second grade shall include all other fish which are in suitable condition to be offered for sale as fresh fish, and fish of the second grade may be sold as "number two fish" or "off shore fish". The third grade shall include all fish which are suitable for splitting and salting, or otherwise preserving, but are not suitable for sale as fresh fish, and fish of the third grade shall be sold as number three fish.

SECTION 2. It shall be unlawful to sell or offer or expose for sale fish which have been graded as number two fish, unless at the time of such sale, or offering, or exposing for sale, it shall be clearly stated or made to appear by suitable designation that they are number two or "off shore" fish.

SECTION 3. It shall be unlawful to sell or offer or expose for sale at retail, for food, number three fish, or to sell or offer or expose the same for food, except for splitting and salting, or otherwise preserving.

SECTION 4. It shall be unlawful to place in cold storage any fresh fish not previously graded as number one or number two fish. All food fish, unless deposited in bulk, shall, when deposited in cold storage, except in private freezing plants, be plainly marked with the date of receipt on the containers in which they are packed, and, if deposited in bulk, shall, at the time of removal from cold storage, be plainly marked with the month and year of receipt on the containers in which they are packed.

SECTION 5. It shall be unlawful to sell or to offer or expose for sale fish which have been held in cold storage without notice to persons purchasing or intending to purchase the same that such fish have so been held, nor without the conspicuous display of a sign "Cold Storage Fish"; and it shall be unlawful to represent or advertise or sell as fresh, fish which have been held in cold storage.

SECTION 6. It shall be unlawful to sell or offer or expose for sale at retail cold storage fish more than forty-eight hours after their receipt by the retailer from cold storage, unless they are received by the retailer in the frozen state and sold frozen to the consumer, except that during the period from November first to March thirty-first in each year, halibut, salmon, swordfish, steak cod and pollock may be sold and offered or exposed for sale at retail during a period of one week after their receipt by the retailer from cold storage, provided that they remain in the frozen state until within forty-eight hours of the time of sale.

SECTION 7. It shall be unlawful to alter, deface or remove any marking on cold storage fish which shows the date of their receipt in cold storage until after the fish are finally withdrawn for the purpose of immediate sale for consumption.

Section 8. It shall be unlawful to transfer the ownership of fish in cold storage without previously making known to the purchaser of the same the date on which they were originally placed in cold storage.

Section 9. It shall be unlawful to deposit, or cause to be deposited, in cold storage fish received from any other state or country which have previously been in cold storage in this commonwealth, or which have been in cold storage in any other state or country, for a period exceeding six months, unless, at the time of deposit, such fish are plainly marked with the date of their original deposit in cold storage in this commonwealth or in any other state or country.

Section 10. So much of chapter six hundred and fifty-two of the acts of nineteen hundred and twelve as is inconsistent herewith shall not apply to the provisions hereof.

Section 11. The governor, with the advice and consent of the council, shall appoint a state inspector of fish for the term of three years, who shall enforce the provisions of this act, and who shall be under the jurisdiction of the board of commissioners on fisheries and game. The said board shall establish, from time to time, such rules and regulations as may be necessary to carry out the provisions of this act. The inspector may appoint, from time to time, such permanent and temporary deputy inspectors as may be authorized by the governor and council. The inspector and deputy inspectors shall receive such compensation as may be fixed by the governor and council.

Section 12. Violation of any provision of this act shall be punished by a fine not exceeding five hundred dollars for each offense or by imprisonment for not more than six months or by both such fine and imprisonment.

Section 13. This act shall take effect on the first day of November, nineteen hundred and nineteen. [*Approved July 23, 1919.*

THE COMMONHEALTH.

Monthly Bulletin of the Massachusetts State Department of Health.

*Sent Free to any Citizen of the State.*

Merrill E. Champion, M.D., Director of Division of Hygiene, Editor.
Room 546, State House, Boston, Mass.

*The Public Health Activities of the Red Cross.* — When it was officially announced that the great peace-time activity of the American Red Cross was to be the field of public health, many wondered if this meant duplication of the efforts which were already being put forth by local and State authorities, to say nothing of those inaugurated by various private bodies. The announcement was soon made, however, that this would not be so; that the work of the Red Cross would supplement existing agencies, new agencies being created only where none now exists. The real purpose of the Red Cross was stated to be one of demonstration to communities of what should and could be done in the hope that the community would ultimately assume the responsibility itself.

These ideals are now in the process of being worked out in Massachusetts. New England has for a long time been fortunate in having at the head of its Red Cross Division persons of wide vision and accurate knowledge of conditions as they exist in this part of the country. Massachusetts frequently comes in for more or less good-natured raillery on the ground of being different from the rest of the country. The fact remains that owing to the survival of the town meeting and the strong feeling of community independence, conditions in this State call for distinctive treatment.

It is thus with feeling of gratification that the State Department of Health can announce that a complete scheme of co-operation has been put into effect between the Red Cross and this Department. Arrangements have been made whereby the New England Division of the Red Cross has detailed one of its workers to the State Department of Health. This, it is confidently expected, will ensure the right sort of mutual interrelationship.

*Health Centers.* — "What is Truth? said jesting Pilate; and would not stay for an answer." In a far different spirit we may ask, "What is a health center?" And we must stay for an answer. The Editor likes to define it as a place where the people of a community may come to learn how to keep well. The Red Cross in its recent pamphlet defines it as "the physical headquarters for the public health work of a community." The term "health center" must in the nature of things be always an elastic one. The board of health office in the community is the original health center, or ought to be. It should go without saying, in Massachusetts at least, that no town or city health center can be complete unless it includes the activities of the official board of health of the community.

Another essential of a true health center must be the public health nurse. She represents the executive of the center. A unit too small to include such an indispensable worker can hardly expect to function effectively.

The quarters which will house the health unit will, of necessity, vary greatly with the finances of the community and the appreciation it has of the importance of health conservation. In one place, one room will suffice; in another, a special building will be erected in order to house adequately all the various units working for the betterment of the public health.

The health center should be primarily a community responsibility. This being the case, every up-to-date board of health will desire to take the lead in starting it. However, it must regretfully be admitted that all boards of health are not up-to-date. If they fail in their duty, other agencies must, of necessity, step in. Or, it may be that the spirit will be willing but the finances weak. In either case the Red Cross will find a very large field for community service in establishing or helping to establish health centers. With official and unofficial agencies working together, public health work will take on a new life and a new meaning.

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*A Further Word on Health Centers.* — It must be remembered in speaking of health centers that they are of two kinds: one has to do with a single community, the other has to do with a group of communities. If effective work is to be done among the small hill towns of the Berkshires, for example, the larger places will have to serve as centers for the smaller.

There are certain obvious difficulties in this plan from the point of view of official action, though these difficulties are by no means insuperable. Unofficial agencies should find no difficulties except those of petty community jealousies, and these should have no part in the campaign in behalf of the public health.

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*Massachusetts Tuberculosis League reorganizes for Intensive Educational Drive.* — The Massachusetts Tuberculosis League, of which Dr. Edward O. Otis is president, is reorganizing to carry through a much more intensive campaign for the prevention of tuberculosis. This is in accordance with the plans of the National Tuberculosis Association, which is planning to raise over $7,000,000 throughout the country for financing the greatest drive for health education undertaken in the world's history.

The National Association is giving its forty-eight State associations strong support both in organizing the campaign for the securing of this amount of money and also in making it a real educational drive for the prevention of disease, and especially of tuberculosis.

The State League expects to raise over $300,000 as its share of the national quota. The money will be used in arousing interest in the discovery and treatment of tuberculosis and in a thorough educational campaign for the prevention of the disease through hygienic living.

Adequate specialized nursing service for the tuberculous, expert consultant service in the early diagnosis of the disease, open-air schools, food clinics for undernourished children, and the Modern Health Crusade for school children are some of the more important features of its program.

In order to place the administration of its affairs on a more efficient basis the State has been divided according to State health districts. A campaign committee has been organized in each district which will be succeeded by a permanent tuberculosis association which will employ a full-time paid executive to supervise anti-tuberculosis work in every city and town.

The State health district, excluding cities large enough to employ full-time paid executive secretaries, has been chosen as the unit of organization not only because of its convenient size and outline, but also because it is realized that the State Department of Health, represented by its State District Health Officers and nurses, constitutes the most important co-operating agency in the fight against this disease which claimed 5,800 victims in our Commonwealth last year. — R. V. Spencer.

*Plainfield Health Clinic.* — A few years past an energetic summer resident of Plainfield conceived the idea that an annual lecture and demonstration dealing with some health topic, to be given by a representative of the State Department of Health, would assist in teaching the residents of that hill town certain fundamentals necessary to personal and community health. This plan has developed into a midsummer health clinic to which children, no age limits, may be brought for physical examination and for advice; troublesome primary teeth are extracted; children are vaccinated on request of a parent; mothers are instructed in the proper care and feeding of infants and growing children, and are urged to have defects corrected. Immediately following the clinic session, those children requiring further examination and treatment are referred, yea even transported, to a hospital in a distant city for necessary special advice and treatment. Results of examinations, treatments advised, and treatments given are recorded on individual clinical charts to which reference is possible from year to year.

In addition to the clinical features of the session, health charts are displayed, literature distributed, and lectures given.

The 1919 session was held July 23 and 24, and the program included examinations both days. In the afternoon of July 23 two illustrated lectures were given: one, "Foods for Children," by Mrs. Sandwall, Health Instructor on Foods of the Division of Hygiene, and the other, "Hygiene of Infancy and Childhood," by Miss Katherine Turner, assistant to the District Health Officer of the Berkshire Health District. These lectures were especially for mothers and children. In the evening Dr. Howard A. Streeter, State District Health Officer, gave an illustrated lecture, "Community Health," to adults. All meetings were held in the town hall.

Plainfield is a small town with a population of approximately 350, nestled well within the Berkshire Hills, miles from a railroad and from a State highway. The area of the town is great, and the population well scattered.

This brief statement can convey to the reader only a meager understanding of the interest which this work has aroused in this small town. To the city dweller, accustomed to good roads, ample means of transportation, hospitals, clinics, physicians, nurses, and often totally ignorant of rural conditions, this country clinic must indeed appear crude, but to the resident of the hills it means that the State of Massachusetts has taken a personal interest, through a constituted department, in his affairs and wishes to bring to him the means for bettering the physical condition of his family and his community. — H. A. Streeter.

*The Parent-Teachers' Association.* — This is the day of many organizations, each striving to do a piece of work which is usually meritorious. Too often, however, due regard is not paid to conservation of energy; too often inexcusable overlapping of aims occurs with duplication of effort.

In pleasant contrast is the Parent-Teachers' Association which has as its avowed purpose co-operation with all agencies which are working for the betterment of women and children. The State Department feels that in putting forward health as one of its prime objects this association is establishing an alliance which will be of the greatest benefit to the State in its efforts to raise the standard of child welfare. The Parent-Teachers' Association, through its affiliation with the Mothers' Congress rightly takes for its province an interest in the child from the prenatal period on. It is thus able to mobilize a large and intelligent group of laymen who will take the trouble to understand and push meritorious health measures. This association desires to make itself felt in every city and town, great or small, in the Commonwealth.

## NOTES FROM THE FIELD OF PUBLIC HEALTH NURSING.

The Metropolitan Chapter of the Red Cross has engaged Miss Katherine McMahon, formerly of the Children's Out-Patient Department of the Massachusetts General Hospital, as field nurse.

The State Department of Health is glad to announce that Miss Nathalie Rudd, field supervisor for the Red Cross, has been assigned for service with this Department by the director of Public Health Nursing of the New England Division, Red Cross.

### Southeastern Health District.

#### *Attleboro.*

Child welfare work is being done by Miss Lillian MacKinnon under the supervision of the Visiting Nursing Association and is financed by the Red Cross.

### Eastern Health District.

#### *Foxborough.*

Miss Agnes Weir, formerly of Cohasset and Westford, has been appointed under the Red Cross to succeed Miss Margaret Bassett, who has gone to Richmond to take the course in public health nursing.

### *Quincy.*

The Quincy Branch of the Boston Metropolitan Chapter of the Red Cross has appropriated the salary of a nurse to work under the Nursing Committee of the Women's Club. Miss Dorothy Doble is the present nurse.

## WACHUSETT HEALTH DISTRICT.

### *Ashburnham.*

Miss Grace Lucas has replaced Miss Spear, resigned on account of illness. Miss Elsie Smith is helping Miss Lucas to reorganize the work, and will devote about six weeks to this work of organization.

### *Fitchburg.*

The Red Cross Chapter is financing one staff nurse of the Visiting Nursing Association in order to extend prenatal, maternity and child welfare work.

### *Gardner.*

Gardner, with a population of a little over 17,000, has been gradually increasing its activities along public health lines until at the present time the following persons are working to help increase the health of this community. There is one physician, employed by the school authorities, who devotes all his mornings to the school children in the public schools, and there is one physician, employed by the board of health, who visits and looks after the health of the children in the parochial schools. There are three school nurses: one for the parochial schools, employed by the board of health, and two for the public schools, employed by the school authorities. One physician attends the tuberculosis dispensary and is paid by the Anti-tuberculosis Society. The nurse who attends the tuberculosis dispensary is paid partly by the board of health and partly by the Anti-tuberculosis Society.

Gardner has a dental clinic and the board of health is now employing a regular dentist to do the work required in this clinic. They expect in the near future to increase this work by adding an oral hygienist to assist in the work of the clinic.

The tuberculosis work in this community includes the towns of Templeton, Westminster and Ashburnham, as well as Gardner, and if possible the dental work is to be extended to cover the same territory.

The district nurse and her assistant, working under the Visiting Nursing Association, are doing child welfare work in addition to their regular visiting nursing.

### *Leominster.*

The Visiting Nursing Association has combined with the Red Cross Committee on Public Health Nursing and the work is at present under the chapter organization. A new nurse has been added to the staff as a result of this amalgamation. The nurses in Leominster are Mary Brogard and Helen Z. Gill. Miss Gill does prenatal and child welfare work exclusively.

### *Lunenburg.*

The Fitchburg Branch of the Red Cross is assisting Lunenburg to pay the salary of a nurse, Miss Satia M. Erskine was appointed September 2.

## BERKSHIRE HEALTH DISTRICT.

### *Great Barrington.*

An interesting meeting of the Berkshire County Association of Public Health Nurses was held in Great Barrington September 25 at the home of Mrs. Clark T. Durant, where the members were the guests of Mrs. Durant at luncheon.

The speakers were Dr. Merrill E. Champion, director of Division of Hygiene, and Dr. Mary R. Lakeman, epidemiologist, Subdivision of Venereal Diseases, of the State Department of Health.

After the meeting the nurses visited the health exhibit at the fair grounds.

### *West Stockbridge.*

A meeting of the Parent-Teachers' Association of Interlaken, West Stockbridge, was held in the church parlors in that town Thursday, August 7. Miss Tolland of the Berkshire Farm Bureau gave a talk on canning, and Miss Katherine Turner, nursing assistant to the District Health Officer of the Berkshire District, talked on infant hygiene and care of children up to school age.

There were sixteen present and a good discussion followed the program arranged.

### *Pittsfield.*

The State Department of Health was well represented at the annual meeting of the Massachusetts Parent-Teachers' Association in October. Dr. Merrill E. Champion, of the Division of Hygiene, spoke on the proposed maternity legislation, and Dr. Lily Owen Burbank spoke on Social Hygiene. The child welfare exhibit of the Division of Hygiene was in charge of Miss G. R. Jules, R.N., and was set up in the high school.

The health week at Jordan Marsh Company's department store, held during the week ending November 8, has been a great success and has been the means of disseminating knowledge of conditions pertaining to health to many persons. The various exhibits were displayed in the most attractive manner, due to the co-operation and progressiveness of the Jordan Marsh Company.

Among the newer exhibits were the Health Crusader panels from the Massachusetts Tuberculosis League, an exhibit on the "Milk Fairies" from the Boston Milk Committee, the panels from the Child Labor Committee, and various charts, etc., from the Division of Communicable Diseases of the State Department of Health.

Daily talks and demonstrations were held, and of especial value were the daily morning talks to the employees of the Jordan Marsh Company. The various District Health Officers, Dr. Osborne, the epidemiologist, and others from the State Health Department gave these talks to the employees, dealing with various phases of how to keep well. The Boston Milk Committee provided a lecturer each morning on the uses and value of milk. These lectures were open to the general public as were the afternoon lectures and demonstrations.

## TEACHER-TRAINING WORK FOR NURSES PREPARATORY TO TEACHING HOME NURSING IN VOCATIONAL CLASSES.

Anna A. Kloss, Agent for Teacher-Training in Household Arts Schools, Massachusetts State Board of Education.

DURING the past year, as a result of the co-operation between the Massachusetts State Department of Health, Division of Hygiene, and the Massachusetts State Board of Education, a number of school authorities have established short courses dealing with home nursing, stressing child welfare work. To these vocational classes, held in public school buildings four hours each week during day or evening, are admitted women sixteen years of age and over. These classes are taught either by a doctor or a graduate nurse who has had adequate practical experience in the problems of the care of the sick under home conditions.

For most doctors and nurses, the teaching of groups of women is a novel experience, no training for which has been taken previously. To acquaint employed and prospective teachers of home nursing with the theory and practice of teaching in vocational schools, a training class, eighty hours in length, was conducted from July 15 to 26 at the Hyannis Normal School by the teacher-training division of the Massachusetts Board of Education.

To this training work the Division of Hygiene rendered valuable service through discussions, conferences and exhibits. Dr. Merrill E. Champion, Mrs. Alzira W. Sandwall and Dr. Lily Owen Burbank presented to the nineteen nurses in the training class problems dealing with different phases of health work. Miss Blanche Wildes discussed the detailed content of tentative suggestive courses, emphasizing the pertinent subjects for varying groups of women, and Miss Anna P. Hanrahan, of the teacher-training division of the Massachusetts Board of Education, the methods used in teaching these subjects.

A class of women similar in organization to those which the nurses are preparing to teach was given a course in the home care of the sick, each lesson of which was taught by different members of the training class under supervision of teacher-training agents and observation of the nurses. By this direct application of teaching principles, the nurses gained certain practical knowledge of vocational teaching.

This training class, the first to be offered to nurses by the teacher-training division of the Massachusetts Board of Education, proved of definite value in that it gave to nurses certain training for vocational teaching and brought before the several hundred Massachusetts teachers attending regular summer session at Hyannis Normal School the scope, value and need of the health work being done under the direction of the Massachusetts Department of Health, Division of Hygiene.

## REPORT UPON THE WORK OF THE BACTERIOLOGICAL LABORATORY FOR THE MONTHS OF JULY, AUGUST, SEPTEMBER AND OCTOBER.

The total number of examinations made was 9,093, divided as follows: diphtheria, 5,016, including 498 cultures for diagnosis which proved positive, and 394 taken for release which proved positive; tuberculosis, 1,230 examinations, of which 327 were positive; Widal test for typhoid, 933 examinations, of which 208 were positive and 52 atypical; culture tests for typhoid, 269 examinations, with 15 positive; malaria, 44 examinations, with 3 positive; gonorrhœa, 1,373 examinations, with 122 positive; pneumonia, 61 examinations; and 173 miscellaneous examinations.

# QUARTERLY REPORT UPON THE DISTRIBUTION OF BIOLOGICAL PRODUCTS AND DIAGNOSTIC OUTFITS.

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The following gives the total number of biological products and diagnostic outfits distributed by the State Department of Health during the three months ending Sept. 30, 1919: —

### *Biological Products.*

| | |
|---|---|
| Diphtheria antitoxin: — | |
| 12,000 units (for the Boston City Hospital), | 204 bottles. |
| 12,000 units, | 19 bottles. |
| 6,000 units (for the Boston City Hospital), | 72 bottles. |
| 6,000 units, | 511 bottles. |
| 3,000 units, | 5,399 bottles. |
| 2,000 units (for the Boston City Hospital), | 24 bottles. |
| 1,000 units, | 1,647 bottles. |
| Smallpox vaccine: — | |
| Capillary tubes, | 97,857 |
| Bulk, | 4,075 |
| Typhoid-paratyphoid vaccine: — | |
| Ampoules, | 3,333 |
| Bulk, | 15,050 |
| Typhoid vaccine: — | |
| Ampoules, | 1,850 |
| Bulk, | 2,275 |
| Paratyphoid vaccine: — | |
| Ampoules, | 315 |
| Antimeningitis serum, | 829 bottles. |
| Silver nitrate solution, | 11,052 ampoules. |

### *Diagnostic Outfits.*

| | |
|---|---|
| Diphtheria culture outfits, | 2,793 |
| Tuberculosis sputum bottles, | 1,252 |
| Pneumonia outfits, | 32 |
| Widal outfits, | 601 |
| Typhoid culture outfits, | 315 |
| Malaria-gonorrhœa outfits, | 707 |

## REPORT OF DIVISION OF FOOD AND DRUGS.

During the months of July and August, 1919, samples were collected in 95 cities and towns.

There were 2,148 samples of milk examined, of which 773 were below the legal standard, 4 samples were skimmed milk above the legal standard, 3 samples were skimmed milk below the legal standard, 67 samples were skimmed milk not properly labeled, and 44 samples contained added water.

There were 69 samples of food examined, of which 19 were adulterated. These consisted of 1 sample of rancid butter, 2 samples of buttermilk and 4 samples of clams, all of which were watered; 1 sample of canned lobster and 3 samples of fish, all of which were decomposed; 2 samples of stale eggs sold as fresh eggs, 1 sample of ice cream low in fat, 2 samples of pressed ham which were colored, and 3 samples of sausage, 1 of which contained starch in excess of 2 per cent, and 2 of which were colored.

There were 95 samples of drugs examined, of which 28 were adulterated. These consisted of 15 samples of denatured alcohol, all of which contained wood alcohol, and 13 samples of citrate of magnesia, all of which contained magnesium sulphate.

The police departments submitted 997 samples of liquor for examination, 147 of which were above 1 per cent in alcohol. The police departments also submitted 14 samples of poisons for examination, 6 of which were morhpine, 2 morphine sulphate, 2 cocaine, 1 cyanide, 1 strychnia, 1 cocaine hydrochloride, and 1 sample examined for poison with negative results.

There were 40 convictions for violations of the laws, $1,065 in fines being imposed.

William Douglas and Tony Molika of Salisbury; Frank Brown of Salisbury Plains; Jaberan Aberizk, George Athos, Angelus Colocousis, Nicholas Koumaras and Nicholas White of Salisbury Beach; James E. Deady and Louis Pappas of Amherst; Stephen Kazarian of Bedford; Francis S. Small of North Truro; John H. Cushman of Springfield; H. P. Hood & Sons of Charlestown; Joseph E. Banville of Swansea; James E. Dunn of Nantasket; Manuel M. Wood of Provincetown; Max Goldstein of Fall River; Richard McWilliams of Clinton; John J. Papp of Pittsfield; and Morris Gordon of Holliston, on 2 counts, were all convicted for violation of the milk laws. H. P. Hood & Sons of Charlestown, Joseph E. Banville of Swansea and James E. Dunn of

Nantasket appealed their cases. Morris Gordon of Holliston appealed both of his cases. The cases of James E. Deady and Louis Pappas of Amherst were both continued for sentence. Clara Kotarski of Salem, on 3 counts; William J. Hull of Ipswich; Michael Borowik of Fall River; John H. Briggs of Methuen; James A. Morse of Pemberton; and Mareo Blancho of Boston were all convicted for violation of the food laws. James A. Morse of Pemberton appealed his case. Samuel R. Gordon of Lynn, on 2 counts; Abraham Karitzky of Chelsea, on 2 counts; Alfred G. Grucuer and Charles E. Lacey of Fitchburg; and James H. Marshall of Boston were all convicted for violation of the drug laws. Abraham Karitzky of Chelsea and Manuel M. Wood of Provincetown were both convicted for obstruction of an inspector. Henry T. Brockelman of Fitchburg was convicted for violation of the slaughtering laws.

There were 13 confiscations made, consisting of 850 pounds of decomposed, frozen eggs, 282 pounds of decomposed, boneless beef, 152 pounds of decomposed beef, 1,769 pounds of decomposed pork trimmings, 200 pounds of decomposed tripe, 48 pounds of decomposed chicken, 4 pounds of tainted fowl, 20,463 pounds of tainted salmon, and 200 pounds of tainted steak cod.

In accordance with the Acts of 1910, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Watered milk was obtained as follows: 3 samples, produced by Tony Molika of Salisbury Plains; 1 sample, produced by Stephen Murphy of Marlborough; 9 samples, produced by Joseph E. Banville of Swansea; and 3 samples, produced by George E. Lawton of North Westport. Skimmed milk, not marked, was obtained as follows: 16 samples, produced by John P. Robery of East Braintree; and 1 sample, produced by Hugh G. Levick of Marlborough.

Clams which contained added water were obtained from the following: 1 sample from Justin J. Hull of Ipswich; 1 sample from Charles H. McGowan; and 1 sample from H. S. Litchfield & Co., both of Boston. One sample of decomposed and watered clams was obtained from Henry A. Pierce of Boston. One sample of decomposed, canned lobster was obtained from M. Merrill Company of Boston.

One sample of sausage, which contained starch in excess of 2 per cent, was obtained from M. Borowik of Fall River. Sausage which contained coloring matter was obtained from the following: 2 samples, from White Eagle Provision Company of Salem; 1 sample from Dominic Kirruel and 1 sample from Kostantino Kolando, both of Lawrence.

Two samples of stale eggs sold as fresh eggs were obtained from Rose T Importing Company of Boston.

Citrate of magnesia which contained magnesium sulphate was obtained from the following: 1 sample from the Italian Pharmacy, A. Amodeo, H. H. Seligman, F. Lauricella, Red Star Pharmacy, all of Boston; 7 samples from Diamond Chemical Company of Somerville.

Denatured alcohol not labeled as required by statute was obtained as follows: 1 sample from Waltham Wall Paper and Paint Company of Waltham; 1 sample from E. S. Sparrow & Co. of Somerville; 1 sample from Steele & Abbott and 1 sample from L. E. Andrews & Co., both of Gloucester; 1 sample from W. H. St. George & Co. and 1 sample from Frost Hardware Company, both of Framingham; 1 sample from J. D. Willard of Provincetown; 1 sample from Hastey Brothers of Hull; 1 sample from Church & Stowell of Wareham; 1 sample from Judah S. Nickerson of Falmouth; 1 sample from H. T. Sanders and 1 sample from George E. Doane, both of Middleborough; 2 samples from Charles E. Lacey and 1 sample from Alfred G. Grueuer, both of Fitchburg.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of June, 1919: 3,578,025 dozens of case eggs, 391,142 pounds of broken-out eggs, 9,619,518 pounds of butter, 946,463 pounds of poultry, 1,999 pounds of game, 8,100,549 pounds of fresh meat and fresh meat products, and 4,946,616 pounds of fresh food fish.

There were on hand on July 1, 1919, 18,522,838 dozens of case eggs, 467,381 pounds of broken-out eggs, and 12,042,695 pounds of butter.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of July, 1919: 1,131,453 dozens of case eggs, 342,062 pounds of broken-out eggs, 9,628,751 pounds of butter, 444,980 pounds of poultry, 300 pounds of game, 5,682,419 pounds of fresh meat and fresh meat products, and 4,717,727 pounds of fresh food fish.

There were on hand on Aug. 1, 1919, 18,422,319 dozens of case eggs, 596,098 pounds of broken-out eggs, and 19,286,460½ pounds of butter.

During the months of September and October, 1919, samples were collected in 55 cities and towns.

There were 1,166 samples of milk examined, of which 270 were below the legal standard, 1 sample was skimmed milk above the legal standard, 2 samples were skimmed milk below the legal standard, 30 samples were skimmed milk not marked, 44 samples contained added water, and 1 sample contained dirt.

There were 472 samples of food examined, of which 221 were adulterated. These consisted of 1 sample of rancid butter; 1 sample of pears having a slight trace of arsenic; 2 samples of sugar, 1 containing salt and the other containing corn meal; 1 sample of clams containing added water; 3 samples of sausage, 2 containing coloring matter, and the other sample containing starch in excess of 2 per cent; 6 samples of olive oil, all of which contained cottonseed oil; 86 samples of soft drinks, all of which contained saccharine; and 121 samples of eggs, 4 of which were decomposed, 74 cold storage and not marked, and 43 samples of stale eggs sold as fresh eggs.

There were 10 samples of drugs examined, of which 5 were adulterated. These consisted of 3 samples of citrate of magnesia, all of which contained magnesium sulphate, and 2 samples of denatured alcohol, 1 of which contained wood alcohol and the other contained 90 per cent of ethyl alcohol and 10 per cent of wood alcohol, kerosene and other denaturants.

The police departments submitted 272 samples of liquor for examination, 19 of which were above 1 per cent in alcohol. The police departments also submitted 16 samples of poisons for examination, 6 of which were morphine, 1 yellow oxide of mercury, 1 cocaine, 1 cocaine hydrochloride, and 7 samples examined for poison with negative results.

There were 47 convictions for violations of the laws, $2,545 in fines being imposed.

Charles H. Doolittle, Samuel J. McCarthy, Waldorf System, Inc., Joseph Braun, Hava Lunch, Inc., James Manuel and Tom Teep of Springfield; Joseph Alves of North Dartmouth; Elton O. Clark of Norwood; Harry A. Larrabee of Nantucket; Domingo Mariano of Oak Bluffs; Allerton E. Wilbur of Middleborough; George H. Bent of Bourne; Albert W. Burgess of Sagamore; Benjamin F. Eaton of Woods Hole; George E. Lawton of Westport; Charles W. Yourkoes of Bedford; and Michael Deveno of Westfield were all convicted for violation of the milk laws. Michael Deveno of Westfield appealed his case. The Empire Grocery Company of Boston and Maurice H. Perlman of Lowell were both convicted for violation of the food laws. Martin L. Saunders of Middleboro, on 2 counts; F. G. Baldwin of Lowell; and Amodeo Brothers, Inc., Lawrence P. Caffarella, Qurino Cichetti, Felice Laurecella and Herman H. Seligman, all of Boston, were all convicted for violation of the drug laws. The Atlantic & Pacific Fish Company, Bay Fish Company, Boston Fish Pier Company, Commonwealth Ice and Cold

Storage Company, Goldsmith-Wall-Stockwell Company, Cassius Hunt Company, Samuel Lipsky, Elias A. Malone, William H. McDonald, Harris Poorvu, Inc., all of Boston, were convicted for holding food in storage longer than twelve months without the consent of the State Department of Health. Joseph Carpenito, John J. Kelliher, Kenneth D. McKinnon, Mary Miles and Frank Pinto, all of Lowell, and Alexander Kotasky and Victor Zdanovicy of Salem were convicted for violation of the cold-storage egg law. E. L. Barr of New Braintree and Max Selacon of Worcester were convicted for slaughtering in the absence of the inspector.

There were 5 confiscations made, consisting of 750 pounds of tuberculous beef; 350 pounds of beef infected with icterus; 30 pounds of dried out fowl; 270 pounds of decomposed halibut. There were also 4,500 pounds of mackerel confiscated by the city of New York on advice from the United States Department of Agriculture, who received information about the shipment from this Department.

In accordance with the Acts of 1910, chapter 272, the following is the list of articles of adulterated food collected in original packages from manufacturers, wholesalers or producers: —

Watered milk was obtained as follows: 5 samples, produced by Charles W. Yourkoes of Bedford; 2 samples, produced by Andrew Beirbieri of Great Barrington; 2 samples, produced by Martin Yeziersky, and 5 samples, produced by Shaheey Karum, both of Feeding Hills; 1 sample, produced by George H. Bent of Bourne; 8 samples, produced by Leslie Philbrook of Sherborn; 3 samples, produced by Michael Deveno of Westfield.

Samples of soft drinks which contained saccharine were obtained as follows: 1 sample each from Louis Later, Joseph Coulombre, Hagelberg & Wikstedt, C. F. Wilson, Jr., Fitchburg Bottling Company, all of Fitchburg; Ryan & Casey of Greenfield; Country Club Bottling Company, Jacob D. Queen, National Bottling Company and George F. Hewitt Company, all of Worcester; O'Neil & Delahanty, Frank Chrupcala and C. & G. Bailey of Fall River; Boyle Brothers and Standard Bottling Company of Lowell; Standard Cheese and Soda Company and Star Bottling Company of Springfield; Thomas Brazell of West Gardner; N. G. Guernsey & Co. of Keene, N. H.; Lovers Leap Company of Lynn; Bellingham Bottling Works and Liberty Bottling Company of Chelsea; Epicure Club Bottling Company of Boston; The East Boston Bottling Company, Metropolitan Bottling Company, Ernest Lamborghini and Hygenia Bottling Company of East Boston; Malden Bottling Company of Malden; Prospect Hill Bottling Company of Somerville; P. J. Gray of Holyoke.

One sample of watered clams was obtained from The Atlantic and Pacific Fish Company of Boston.

Olive oil which contained cottonseed oil was obtained from the following: 2 samples from V. Pettazzini of Springfield; 2 samples from G. Armenis & Co. and 1 sample from Charles Scoulikas & Co., both of Boston.

Two samples of sausage which contained coloring matter were obtained from Rood & Woodbury of Springfield. Two samples of sausage, which contained starch in excess of 2 per cent, were obtained from Pineau & Martell of Fall River.

Citrate of magnesia which contained magnesium sulphate was obtained from the following: 1 sample each from Nicholas Angelos, Ettore De Leo and Farmico Colombo of Boston.

One sample of denatured alcohol which contained wood alcohol was obtained from Martin T. Saunders of Middleborough. One sample of denatured alcohol, containing 90 per cent ethyl alcohol, 10 per cent wood alcohol, kerosene and other denaturants, was obtained from L. E. Smith Company of Gloucester.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of August, 1919: 777,820 dozens of case eggs, 280,068 pounds of broken-out eggs, 3,875,540 pounds of butter, 364,622 pounds of poultry, 6,099 pounds of game, 5,157,736 pounds of fresh meat and fresh meat products, and 3,686,871 pounds of fresh food fish.

There were on hand on Sept. 1, 1919, 17,526,923 dozens of case eggs, 619,636 pounds of broken-out eggs, and 20,715,491 pounds of butter.

The licensed cold-storage warehouses report the following amounts of food placed in storage during the month of September, 1919: 358,235½ dozens of case eggs, 295,484 pounds of broken-out eggs, 2,017,940 pounds of butter, 656,564 pounds of poultry, 6,165 pounds of game, 4,092,220 pounds of fresh meat and fresh meat products, and 4,381,284 pounds of fresh food fish.

There were on hand Oct. 1, 1919, 15,524,312½ dozens of case eggs, 600,770 pounds of broken-out eggs, and 19,331,608 pounds of butter.

# THE SCARLET FEVER WAVE IN 1919.

By Stanley H. Osborn, M.D., Epidemiologist, Massachusetts State Department of Health.

SCARLET fever in Massachusetts is increasing daily and more cases were reported in October this year than in any previous year. This scarlet fever wave is seen in the following table: —

| Year. | August. | September. | October. | Total for Three Months. | Total for Year. |
|---|---|---|---|---|---|
| 1915. | 274 | 299 | 439 | 1,012 | 8,613 |
| 1916, | 154 | 201 | 305 | 660 | 6,271 |
| 1917, | 145 | 248 | 440 | 833 | 5,954 |
| 1918, | 122 | 177 | 225 | 524 | 4,490 |
| 1919, | 248 | 407 | 789 | 1,444 | 5,572[1] |

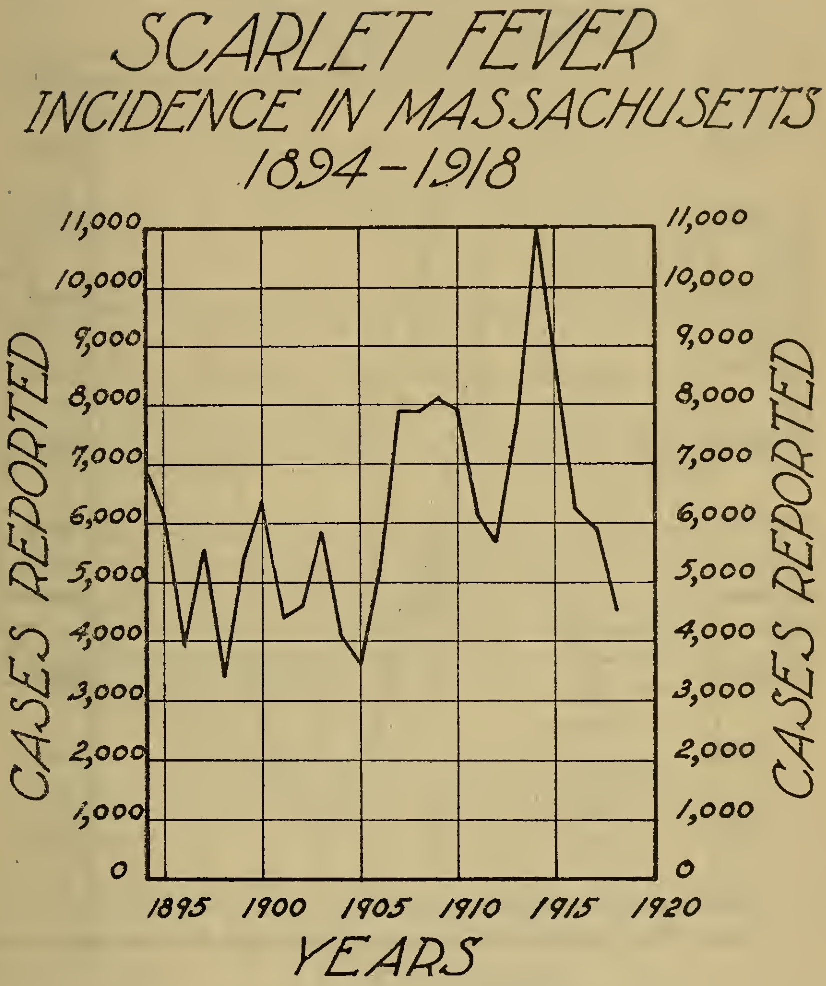
[1] Ten months.

In a similar manner the deaths due to scarlet fever are increasing in number.

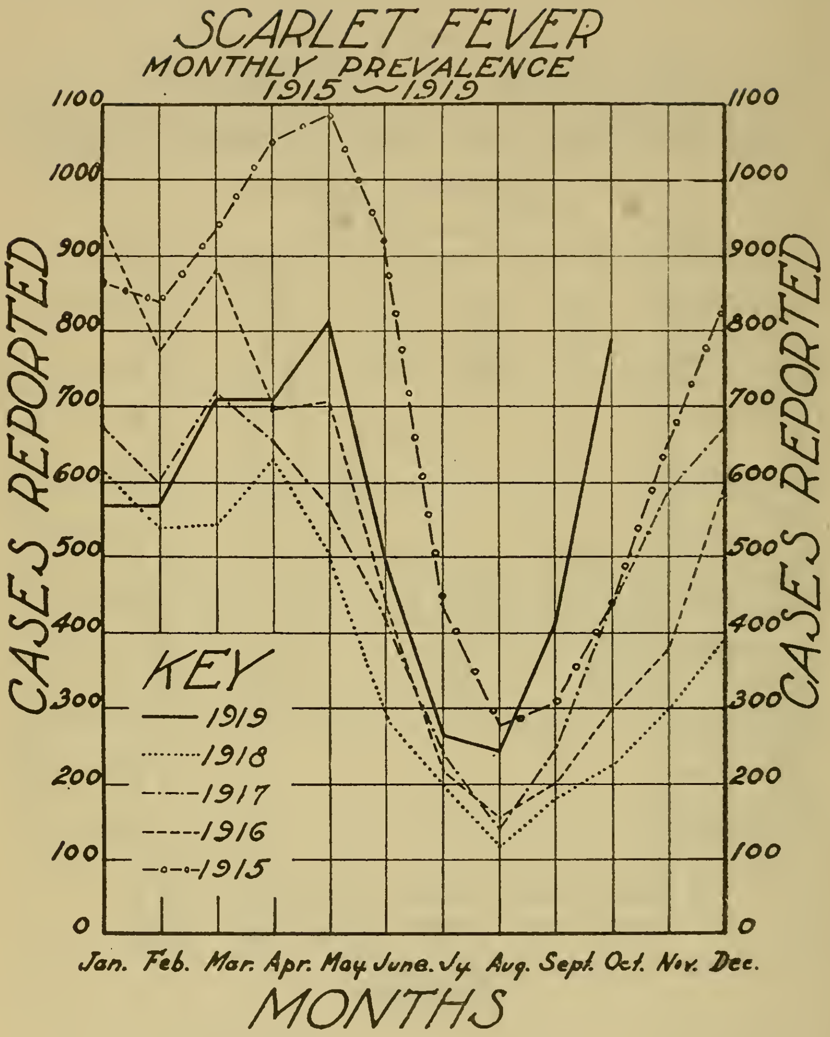
There had been no signs indicating the coming of an unusual amount of disease up to July, but in August, instead of the continued decrease in cases as normally occurs, there were 248 cases compared with 268 reports in July, or, in other words, the disease held its own and thus secured a foothold for the winter from which to spread. It is fair to assume that the disease will increase, and increase markedly, unless educational work is carried on throughout the State against this disease.

The charts on pages 235 and 236 indicate the yearly incidence of scarlet fever since 1894 and the monthly incidence for the years 1915–19, inclusive. Particularly impressive is the peak of 1914 and the constant decrease in cases the ensuing four years, with the low point in 1918. The chart showing the monthly prevalence from 1915 to date brings out one prominent fact, — the high August incidence, instead of a continued decrease compared with July, as in other years.

To sum up, Massachusetts has had a decrease in scarlet fever for a four-year period, the longest time that the records have shown a continued decrease in the incidence of the disease. The result is that there is a large number of children in the State who have not had the disease and who will furnish material for a continued spread of the disease until the number of non-immune children has been greatly diminished.



SCARLET FEVER
INCIDENCE IN MASSACHUSETTS
1894-1918


SCARLET FEVER
MONTHLY PREVALENCE
1915 ~ 1919
CASES REPORTED
CASES REPORTED
1100
1000
900
800
700
600
500
400
300
200
100
0
KEY
1919
1918
1917
1916
1915
Jan.
Feb.
Mar.
Apr.
May
June.
Jy.
Aug.
Sept.
Oct.
Nov.
Dec.
MONTHS

## Reasons for the Increase in Cases.

The reason for the increase is partly due to the increase in susceptible material since 1914, that is, children who have not had the disease. The year of greatest incidence in scarlet fever was 1914 when the greatest number of cases occurred in the spring months, for example, in March there were 1,717 cases reported. The present increase seems to indicate that we are to have a like increase with the largest number of cases yet to come.

Investigation this year has shown that contacts are not excluded from school in all cases and these serve as foci of infection for further spread of the disease. Mild cases are found in school constantly and are often the chief cause of continued cases in the same school and neighborhood. The cases are practically all among school children and the pre-school age group. The only way to control the disease is daily medical inspection at the schools in an effort to keep the school clear of mild cases of the disease. The closing of the school would tend to disseminate the disease into every part of a community instead of perhaps localizing it in a school district. Schools, where daily medical inspection of pupils can be done by a school physician or experienced public health nurse, and other public places should not be closed.

Milk is an infrequent factor in the spread of scarlet fever at the present time, due to the prompt reporting of cases on milk farms and consequent action by the local boards of health. In Massachusetts for the period 1909–14, 845 cases of scarlet fever were traced to milk as a source of infection, while for the period 1915–18 only 140 cases have been traced to milk.

## What we know about Scarlet Fever.

1. The incubation period is from two to five days with a maximum of eight days.

2. The infecting germ, or virus, is present in the nose, throat and ear and suppurating gland discharges for about twenty-eight days after the onset of the average case, and on this fact the quarantine period is based.

3. As long as a sore throat or body discharges exist in a case of scarlet fever, the patient should be considered as capable of transmitting the disease. All persons who have been in contact with a case of scarlet fever may become sick at any time within eight days after the last contact with the patient, as this is the maximum period of incubation for practical purposes of control of the disease.

A method of control of scarlet fever based on these facts will aid in diminishing the disease if carried out by a health board with the co-operation of the public.

## CONTROL OF SCARLET FEVER.

The control of scarlet fever is based on the detection of cases, especially mild cases, in the acute stage of the disease. On the detection of these cases rests all further public health measures, such as the isolation of the case, quarantine of contacts and the epidemiological investigation into the cause of the outbreak. A community should not criticize a local board of health unless each individual assists, to his utmost, the local board of health in carrying out the necessary measures to control the disease.

1. *Quarantine* of the sick patient should be carried out for twenty-eight days from the onset of the disease and thereafter until infective discharges from the nose and throat, ear and abscesses, have ceased.
2. All school children should be excluded from school for eight days after contact with a scarlet fever case, unless they are immune by having had the disease previously.
3. A daily medical inspection of schools where a scarlet fever case has appeared is the best single method to clear a school of scarlet fever, for mild and beginning cases will be detected and proper precautions taken. The inspection should exclude from school each child who has a sore throat, a discharge from the nose or ears, and suppurating glands or abscesses, and may be carried out by the school physician or trained public health nurse.
4. The daily follow-up work by the school nurse, investigating absentees, will disclose mild cases at home who have no physician in attendance, and who because of the mild character of the disease might return to school while in the contagious stage and infect others.
5. No person should be allowed to handle milk or food after exposure to a case of scarlet fever until the maximum incubation period has elapsed or permission has been obtained from the board of health.
6. No persons whose occupations bring them into contact with children, such as a teacher who has been exposed to scarlet fever, should return to work without permission from the local board of health.

# RÉSUMÉ OF COMMUNICABLE DISEASES.

## JULY, 1919.

### *General Prevalence.*

There were but 4,603 cases of disease reported for July this year as compared with 6,246 cases for the same month last year. This is a decrease from the total of 5,713 cases reported in June of this year.

All communicable diseases are lower than the average with the exception of scarlet fever, which remains high compared with the cases of previous years.

*Diphtheria* showed a slight increase the first half of the month, but the total for the month was below the average.

*Measles* is giving less concern to health boards than for many years, but 469 cases being reported as compared with 1,962 cases in 1918, 1,347 in 1917 and 2,670 in 1916.

*Influenza.* — There were 31 cases reported in July.

*Typhoid fever* showed an increase, a total of 69 cases being reported as compared with 45 cases for June. This is a favorable decrease from the 112 cases for the same month last year. Of the 69 cases reported, 12 received their infection from drinking polluted spring water, 1 by a carrier, 8 were in contact with individuals ill with the disease, no cause could be found for 38 cases, and 4 cases were infected while outside of the State. There is no definite information on file for the remaining 6 cases.

*Typhoid Fever Bacilli Carriers.* — Two typhoid bacilli carriers were found during the month. One, in Randolph, infected the milk and 8 cases of typhoid fever occurred on his route earlier in the year. Typhoid bacilli were found in the feces. Another carrier was found in Lawrence who was responsible for a case in the household. The carrier had typhoid fever in February, 1919. Typhoid bacilli were found in the feces.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Bridgewater, 2; Lowell, 1; Scituate, 1; West Newbury, 1; total, 5.

*Anthrax* was reported from Lynn, 1; Woburn, 1; total, 2.

*Dog bite* was reported from Beverly, 1; Hull, 2; Lowell, 2; New Bedford, 4; Winthrop, 2; total, 11.

*Dysentery* was reported from Adams, 1; Northampton, 1; Salem, 1; total, 3.

*Epidemic cerebrospinal meningitis* was reported from Boston, 4; Cambridge, 1; Camp Devens, 1; Everett, 1; Fall River, 2; Haverhill, 1; Hingham, 1; Holyoke, 1; Hull, 1; Lawrence, 2; Lowell, 1; Newburyport, 2; Pittsfield, 3; Somerville, 1; Winthrop, 1; total, 23.

*Malaria* was reported from Camp Devens, 1; Framingham, 9; Middleborough, 1; Milford, 7; Northbridge, 2; total, 20.

*Smallpox* was reported from Quincy, 2.

*Septic sore throat* was reported from Boston, 4; Cambridge, 1; Malden, 1; Medford, 1; Natick, 1; Newburyport, 1; total, 9.

*Tetanus* was reported from Fall River, 1; Lynn, 1; total, 2.

*Trachoma* was reported from Boston, 1; Cambridge, 1; Lowell, 1; Peabody, 1; Worcester, 1; total, 5.

## *Distribution.*

### *All Communicable Diseases.*

| | July, 1919. | July, 1918. |
|---|---|---|
| Total cases, | 4,603 | 6,246 |
| Case rate per 100,000 population, | 115.3 | 159.3 |

### *Certain Prevalent Diseases.*

| | July, 1919. | July, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | New Bedford, (6) 13<br>Dedham, (2) 7<br>Haverhill, (4) 18<br>Salem, (3) 9 |
| Total cases, | 428 | 453 | |
| Case rate per 100,000 population, | 10.7 | 11.6 | |
| Measles: — | | | Swansea, (0) 6<br>Tisbury, (0) 34<br>Westport, (0) 13<br>Saugus, (0) 14<br>Auburn, (0) 10<br>Leominster, (6) 20 |
| Total cases, | 469 | 1,962 | |
| Case rate per 100,000 population, | 11.7 | 50.0 | |
| Scarlet fever: — | | | Cambridge, (4) 15<br>Gloucester, (0) 4<br>Lawrence, (2) 8<br>Lowell, (3) 12 |
| Total cases, | 268 | 200 | |
| Case rate per 100,000 population, | 6.7 | 5.1 | |
| Whooping cough: — | | | Tisbury, (0) 8<br>Newton, (7) 13<br>Haverhill, (4) 34<br>Worcester, (11) 34<br>Pittsfield, (1) 78 |
| Total cases, | 471 | 781 | |
| Case rate per 100,000 population, | 11.8 | 19.9 | |
| Typhoid fever: — | | | Malden, (1) 8 |
| Total cases, | 69 | 112 | |
| Case rate per 100,000 population, | 1.7 | 2.9 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, | 577 | 614 | |
| Case rate per 100,000 population, | 14.5 | 15.7 | |
| Tuberculosis, other forms: — | | | |
| Total cases, | 69 | 82 | |
| Case rate per 100,000 population, | 1.7 | 2.1 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## INTERSTATE RECIPROCAL NOTIFICATIONS IN JULY.

| Disease and Locality of Notification. | Health Authority referred to — | Why referred. |
|---|---|---|
| Typhoid fever; Cambridge, . | State Department of Health, Augusta, Me. | Patient came from Long Pond, Me., about two weeks prior to onset; onset, July 15. |
| Typhoid fever; Marlborough, | State Board of Health, Montpelier, Vt. | Patient left her home in Brattelboro, Vt., on July 15; onset of disease July 17. |
| Typhoid fever; Boston, . | State Department of Health, Augusta, Me. | Patient left Eastport, Me., July 10; onset of disease July 13. |
| Typhoid fever; Lynn, . | State Department of Health, Augusta, Me. | Patient was taken sick in Topsfield, Me., and came to Lynn sick July 10. |
| Typhoid fever; Cambridge, . | State Department of Health, Augusta, Me. | Patient came from Long Pond, Me., about two weeks prior to onset; onset of disease July 21. |
| Typhoid fever; Lynn, . . | State Department of Health, Augusta, Me. | Patient resided in Rockland, Me., from June 28 to July 6; became sick on return home. |
| Typhoid fever; Everett, . | State Board of Health, Concord, N. H. | Two persons became ill on returning from Derrington, N. H.; onset of disease July 31. |

### August, 1919.

*General Prevalence.*

Diseases reportable in the State showed a decrease, 3,356 cases being reported compared to the preceding month's total of 4,603 cases. In August, 1918, there were 4,301 cases reported.

Only two of the communicable diseases for the month showed an increase in cases, these being typhoid fever and influenza.

*Scarlet fever,* however, is running higher than the past four years, and all health officials should give more than ordinary attention to this disease this fall in order to localize cases when they occur.

*Influenza.* — There were 63 cases reported in August.

*Typhoid fever* increased from 69 cases reported in July to 136 cases reported in August. Investigation of these showed 3 cases due to milk, 7 cases due to milk infected by typhoid bacilli from a carrier, 1 case due to water polluted by a known carrier, 15 cases due to infected spring water, 16 cases in contact with individuals ill with typhoid, 1 case due to a carrier, 10 cases infected without the State, and in 73 cases the source of infection was not found. No histories are available for 10 others at present.

*Typhoid Bacilli Carriers.* — Two new typhoid bacilli carriers were found in Gardner during the month. An outbreak of 8 cases occurred, all of the cases being connected with a milk route. Immediate action by the agent of the local board of health assisted by the State District

Health Officer disclosed two carriers. One was a milker on a milk farm. The Widal test was negative, but typhoid bacilli were found in the urine. The carrier had typhoid fever in 1913. The other carrier gave a positive Widal test and typhoid bacilli were found in the feces. No history was obtained of this carrier ever having typhoid fever.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Boston, 3; Carlisle, 1; Easthampton, 1; Holliston, 1; Holyoke, 1; Lowell, 2; Lynn, 1; New Bedford, 1; Swampscott, 1; total, 12.

*Dog bite* was reported from Lowell, 1; Winthrop, 1; total, 2.

*Dysentery* was reported from Cambridge, 1; Newburyport, 2; total, 3.

*Epidemic cerebrospinal meningitis* was reported from Boston, 3; Chelsea, 1; Fall River, 2; Lawrence, 1; Leominster, 1; Lowell, 1; Malden, 2; Methuen, 1; Newburyport, 1; North Andover, 1; Orange, 1; total, 15.

*Malaria* was reported from Boston, 1; Brockton, 1; Camp Devens, 1; Fall River, 1; Framingham, 2; Lawrence, 1; Milford, 12; total, 19.

*Pellagra* was reported from Danvers, 1; Northampton, 1; Westborough, 1; total, 3.

*Septic sore throat* was reported from Boston; 3; Cambridge, 6; Fall River, 1; Lowell, 1; Medford, 1; Natick, 1; Newburyport, 3; total, 16.

*Tetanus* was reported from Concord, 1; Lynn, 1; Worcester, 1; total, 3.

*Trachoma* was reported from Boston, 2; Haverhill, 1; Malden, 1; total, 4.

### *Distribution.*

*All Communicable Diseases.*

| | August, 1919. | August, 1918. |
|---|---|---|
| Total cases, | 3,355 | 4,301 |
| Case rate per 100,000 population, | 84 | 109.7 |

*Certain Prevalent Diseases.*

| | August, 1919. | August, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | |
| Total cases, | 324 | 337 | Foxborough, (0) 8 |
| Case rate per 100,000 population, | 8.1 | 8.6 | |
| Measles: — | | | |
| Total cases, | 131 | 500 | Brockton, (4) 17 |
| Case rate per 100,000 population, | 3.3 | 12.8 | |
| Scarlet fever: — | | | |
| Total cases, | 248 | 122 | Cambridge, (5) 12<br>Quincy, (2) 15<br>Gloucester, (0) 7<br>Lawrence, (2) 11<br>Holyoke, (4) 12 |
| Case rate per 100,000 population, | 6.2 | 3.1 | |
| Whooping cough: — | | | |
| Total cases, | 424 | 688 | Cambridge, (11) 32<br>Newton, (5) 14<br>Haverhill, (1) 23<br>Worcester, (5) 34<br>Pittsfield, (3) 29 |
| Case rate per 100,000 population, | 10.6 | 17.5 | |
| Typhoid fever: — | | | |
| Total cases, | 134 | 184 | Malden, (2) 10<br>Medford, (1) 6 |
| Case rate per 100,000 population, | 3.4 | 4.7 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, | 538 | 606 | |
| Case rate per 100,000 population, | 13.4 | 15.5 | |
| Tuberculosis, other forms: — | | | |
| Total cases, | 50 | 58 | |
| Case rate per 100,000 population, | 1.3 | 1.5 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## INTERSTATE RECIPROCAL NOTIFICATIONS IN AUGUST.

| Disease and Locality of Notification. | Health Authority referred to — | Why referred. |
|---|---|---|
| Typhoid fever; Hudson, . | State Board of Health, Concord, N. H. | Patient returned from New London, N. H., on August 1; onset of disease August 6. |
| Typhoid fever; Boston, . | State Board of Health, Concord, N. H. | Patient returned from North Brookfield, N. H., on August 2; onset of disease August 9. |
| Typhoid fever; Boston, . | State Board of Health, Providence, R. I. | Patient returned from Providence, R. I., on August 6; onset of disease about August 18. |
| Typhoid fever; Lynn, . . | State Board of Health, Concord, N. H. | Patient arrived from Thornton, N. H., ill; onset of disease August 21. |
| Typhoid fever; Brookline, . | State Department of Health, Augusta, Me. | Patient came from Long Pond, Me., to Brookline, on August 30; onset of disease August 20. |

### September, 1919.

### *General Prevalence.*

In the month of September there were 4,190 cases of communicable diseases reported compared with 6,726 cases for the same month the previous year.

*Anthrax.* — Four cases were reported during the month, of which number, 3 cases received their infection from hides. The remaining one was apparently infected by a shaving brush he had recently bought. As he had burned the brush a laboratory examination could not be made.

*Diphtheria* increased markedly over the August total, in which month 324 cases were reported, whereas 529 cases occurred in September. The increase in cases is in the eastern and northeastern sections of the State.

*Influenza* is showing no signs of becoming epidemic at the present time. There were 226 cases reported in September.

*Measles* increased 48 cases over the previous month, 179 cases being reported for the current month. This disease seems more active in the area south of Brockton.

*Scarlet Fever.* — There were 407 cases of scarlet fever in the State during the month, an increase over the 248 cases reported in August. The communities showing the greatest increase are grouped in the northeastern part of the State.

*Typhoid fever* cases increased from 135 cases reported for the previous month to 146 cases for September. Of these cases, 8 were due to infected milk; in 2 cases the milk was infected by a carrier and the infection was received while on a trip to New Hampshire. Contact with persons ill with typhoid was responsible for 16 cases. Food, infected by a probable carrier, caused 11 cases. Drinking water from a polluted spring and a polluted well, each found to contain colon bacilli, caused 7 cases. There were 83 cases in which the source of infection was not found 8 cases infected outside the State and case records for the remaining 11 cases have not yet been received.

*Typhoid Fever Outbreaks.* — An outbreak of 11 cases of typhoid fever occurred in Attleboro. Investigation by the local health officer and the State Department of Health failed to definitely locate the cause. Careful investigation excluded a suspected water supply and ice supply. The evidence collected was finally sufficient for epidemiological purposes to determine the cause to be a food handler who is probably a carrier. He denied ever having had the disease, but has a positive Widal test. Repeated examinations of his feces and urine, were negative, so the typhoid bacilli are probably given off at intermittent periods. For this reason the suspected carrier is not working at an occupation that necessitates his handling food.

In Lowell 6 cases were reported in addition to 3 August cases, all cases taking milk from the same milk dealer. Investigation was at once carried out by the local board of health and State District Health Officer and evidence collected showed that bottles were being collected from houses where persons were sick with typhoid fever. Examinations were carried out on employees of the milk route and dairy, but no carriers or clinical cases were found on the milk route, thus the infection was apparently spread by infected milk bottles.

## *Rare Diseases.*

*Anterior poliomyelitis* was reported from Boston, 2; Fall River, 1; Holyoke, 1; North Adams, 1; Palmer, 1; Revere, 1; Swampscott, 1; Weymouth, 1; total, 9.

*Anthrax* was reported from Boston, 1; Chelsea, 1; Peabody, 1; Salem, 1; total, 4.

*Dog bite* was reported from Dartmouth, 1; Lowell, 1; Taunton, 1; total, 3.

*Dysentery* was reported from Boston, 2; Brookline, 1; Cambridge, 1; Quincy, 2; total, 6.

*Epidemic cerebrospinal meningitis* was reported from Boston, 9; Chelmsford, 1; Chelsea, 1; Cohasset, 1; Fall River, 1; Framingham, 1; Lowell, 2; Lynn, 1; Somerville, 1; Ware, 1; total, 19.

*Malaria* was reported from Barre, 1; Boston, 2; Lexington, 1; Northbridge, 1; total, 5.

*Septic sore throat* was reported from Arlington, 1; Boston, 1; Cambridge, 1; Fall River, 1; Haverhill, 1; Lowell, 4; Medford, 1; New Bedford, 2; Newburyport, 2; Somerville, 1; Wareham, 1; Wayland, 1; Woburn, 1; total, 18.

*Tetanus* was reported from Barnstable, 1; Franklin, 1; Pittsfield, 1; Somerville, 1; Worcester, 1; total, 5.

*Trachoma* was reported from Boston, 4; Cambridge, 1; Northampton, 1; total, 6.

## *Distribution.*

### *All Communicable Diseases.*

| | September, 1919. | September, 1918. |
|---|---|---|
| Total cases, . . . . . . . . . | 4,190 | 6,726 |
| Case rate per 100,000 population, . . . . . | 105 | 171.5 |

### *Certain Prevalent Diseases.*

| | September, 1919. | September, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: — | | | Boston, . . . (130) 163<br>Bridgewater, . . . (0) 16<br>Brockton, . . . (2) 10<br>Lynn, . . . . (12) 28<br>Salem, . . . . (3) 14<br>Athol, . . . . (0) 8<br>Ayer, . . . . (2) 10<br>Westfield, . . . (1) 9 |
| Total cases, . . . . . . | 529 | 430 | |
| Case rate per 100,000 population, . | 13.3 | 11.0 | |
| Measles: — | | | Edgartown, . . (0) 6<br>New Bedford, . . (7) 26 |
| Total cases, . . . . . . | 179 | 263 | |
| Case rate per 100,000 population, . | 4.5 | 6.7 | |
| Scarlet fever: — | | | Gloucester, . . . (2) 15<br>Lynn, . . . . (7) 24<br>Revere, . . . . (0) 9<br>Salem, . . . . (2) 13<br>Lawrence, . . . (2) 16<br>Westfield, . . . (2) 11 |
| Total cases, . . . . . . | 407 | 177 | |
| Case rate per 100,000 population, . | 10.2 | 4.5 | |
| Typhoid fever: — | | | Attleboro, . . . (1) 11 |
| Total cases, . . . . . . | 146 | 261 | |
| Case rate per 100,000 population, . | 3.7 | 6.7 | |
| Whooping cough: — | | | |
| Total cases, . . . . . . | 349 | 543 | |
| Case rate per 100,000 population, . | 8.7 | 13.9 | |
| Tuberculosis, pulmonary: — | | | |
| Total cases, . . . . . . | 582 | 570 | |
| Case rate per 100,000 population, . | 14.6 | 14.5 | |
| Tuberculosis, other forms: — | | | |
| Total cases, . . . . . . | 75 | 49 | |
| Case rate per 100,000 population, . | 1.9 | 1.2 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## OCTOBER, 1919.

### *General Prevalence.*

In the month of October cases of disease all over the State increased in comparison with the previous month, 5,947 cases being reported.

*Anthrax.* — There were 3 cases of anthrax reported and investigation showed that these cases received their infection, apparently, from Argentine wool in 1 case and foreign hides in the other 2 cases. The country from which the infected hides were exported could not be determined.

*Diphtheria* cases nearly doubled the September total, 993 cases being reported, and extra efforts to prevent its spread are needed to effect any control. Many school outbreaks are reported, and constant watchfulness for incipient cases, combined with *culturing schools where cases occur* in a search for mild cases, and carriers is necessary to combat the disease. *Culture your schools and reculture,* if necessary, if diphtheria cases continue, and do not forget to immunize all persons who are susceptible. The increase occurred throughout the State except in the Berkshire and Wachusett districts.

*Influenza* decreased from 226 cases in September to 199 for the current month.

*Measles* continues to prevail in the eastern and southeastern sections of the State.

*Scarlet fever* increased 382 cases over the previous month, a total of 789 cases having been reported. The increase in scarlet fever began in the eastern section of the State, but has now spread to central Massachusetts. The great number of mild cases makes the problem of control a difficult one for local boards of health to cope with.

*Typhoid Fever.* — Typhoid fever cases increased slightly over September, 154 cases being reported. Of these, 9 were due to a polluted well, 9 had been in contact with cases of typhoid, 5 received their infection from an unknown source outside the State, and no cause was found in 91 cases. Infected milk was responsible for 6 cases, 2 of which were found to be apparently due to milk bottles from a house where a case existed, and the remaining 4 drinking milk from three separate supplies infected by three different typhoid bacilli carriers:

There are 34 cases on which case records have not been received, but 16 of these are Worcester cases, and all are probably connected with the milk outbreak in that city.

An outbreak of typhoid fever began during the month in Worcester, 16 cases being reported. Through the action of the Worcester board of health the cases were found to be on the route of a single milk distributor, and a typhoid bacilli carrier was located on a farm supplying milk to this milk distributor.

### *Rare Diseases.*

*Anterior poliomyelitis* was reported from Boston, 4; Brockton, 1; Clinton, 1; Everett, 1; Lowell, 4; Lynn, 2; Methuen, 1; Springfield, 1; Warwick, 1; Worcester, 1; total, 17.

*Anthrax* was reported from Peabody, 1; Salem, 1; Weymouth, 1; total, 3.

*Dog bite* was reported from Fall River, 1; Lowell, 3; Swansea, 8; total, 12.

*Dysentery* was reported from Boston, 2; Scituate, 1; total, 3.

*Epidemic cerebrospinal meningitis* was reported from Amesbury, 1; Attleboro, 1; Avon, 1; Boston, 7; Fall River, 1; Lowell, 1; Lunenburg, 1; Lynn, 1; total, 14.

*Malaria* was reported from Boston, 3; Camp Devens, 1; Springfield, 1; total, 5.

*Pellagra* was reported from Boston, 1.

*Smallpox* was reported from Boston, 1; Lawrence, 1; total, 2.

*Septic sore throat* was reported from Boston, 5; Brockton, 1; Cambridge, 1; Haverhill, 1; Lowell, 2; Medford, 1; Newbury, 7; Newburyport, 4; Provincetown, 1; total, 23.

*Tetanus* was reported from Boston, 1.

*Trachoma* was reported from Boston, 3; Chicopee, 1; Fitchburg, 1; Watertown, 1; Williamstown, 1; total, 7.

## *Distribution.*

*All Communicable Diseases.*

| | October, 1919. | October, 1918. |
|---|---|---|
| Total cases (all causes), | 5,947 | 6,875 |
| Case rate per 100,000 population, | 149 | 175.6 |

*Certain Prevalent Diseases.*

| | October, 1919. | October, 1918. | Cities and Towns noticeably exceeding their Median Endemic Indices.[1] |
|---|---|---|---|
| Diphtheria: —<br>Total cases,<br>Case rate per 100,000 population, | <br>993<br>24.9 | <br>410<br>10.5 | Bridgewater, (1) 11<br>Quincy, (7) 16<br>Weymouth, (1) 15<br>Everett, (13) 63<br>Gloucester, (1) 18<br>Lynn, (17) 86<br>Salem, (1) 27<br>Concord, (0) 19<br>Spencer, (0) 15<br>Worcester, (37) 57<br>Westfield, (3) 13 |
| Measles: —<br>Total cases,<br>Case rate per 100,000 population, | <br>562<br>14.1 | <br>318<br>8.1 | Fall River, (7) 35<br>New Bedford, (7) 76<br>Oak Bluffs, (0) 24<br>Boston, (78) 255<br>Brockton, (1) 56<br>Danvers, (0) 34 |
| Scarlet fever: —<br>Total cases,<br>Case rate per 100,000 population, | <br>789<br>19.8 | <br>225<br>5.7 | Mansfield, (0) 8<br>Abington, (0) 9<br>Bridgewater, (0) 14<br>Newton, (2) 19<br>Cambridge, (7) 27<br>Beverly, (1) 10<br>Everett, (2) 10<br>Gloucester, (2) 37<br>Lynn, (7) 63<br>Salem, (2) 31<br>Lowell, (6) 38<br>Worcester, (13) 34<br>Leominster, (1) 17<br>Easthampton, (0) 17 |
| Typhoid fever: —<br>Total cases,<br>Case rate per 100,000 population, | <br>155<br>3.9 | <br>97<br>2.5 | Worcester, (7) 16<br>Newton, (0) 7 |
| Whooping cough: —<br>Total cases,<br>Case rate per 100,000 population, | <br>367<br>9.2 | <br>332<br>8.5 | Mattapoisett, (0) 9<br>Tisbury, (0) 16 |
| Tuberculosis, pulmonary: —<br>Total cases,<br>Case rate per 100,000 population, | <br>587<br>14.7 | <br>441<br>11.2 | |
| Tuberculosis, other forms: —<br>Total cases,<br>Case rate per 100,000 population, | <br>62<br>1.6 | <br>24<br>.6 | |

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[1] The median endemic index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the names of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, . . . . . | 3,991,969 | 880 | 1 | 561 | 37 | 25 | 19 | 77 | – | 352 | 181 | 1,308 | 24 |
| 2 | Cities over 200,000. | | | | | | | | | | | | | |
| 3 | Boston, . . . . . . | 808,442 | 249 | – | 167 | 7 | 6 | 5 | 10 | – | 115 | 49 | 86 | – |
| 4 | Cities, 150,000–200,000. | | | | | | | | | | | | | |
| 5 | Worcester, . . . . . . | 176,761 | 11 | – | 32 | 1 | 1 | 1 | 6 | – | 7 | 9 | 218 | 5 |
| 6 | Cities, 100,000–150,000. | *687,463* | *127* | – | *107* | *10* | *5* | *3* | *24* | – | *69* | *27* | *501* | *18* |
| 7 | Fall River, . . . . . . | 129,416 | 27 | – | 10 | – | 2 | 1 | 1 | – | 12 | 2 | 236 | 13 |
| 8 | New Bedford, . . . . . | 120,438 | 12 | – | 9 | 2 | – | – | 9 | – | 3 | 2 | 55 | – |
| 9 | Springfield, . . . . . . | 114,792 | 38 | – | 9 | 1 | – | – | 1 | – | 12 | 5 | 6 | – |
| 10 | Cambridge, . . . . . . | 112,176 | 39 | – | 10 | – | 1 | 1 | 11 | – | 15 | 5 | 36 | – |
| 11 | Lowell, . . . . . . . | 109,396 | 2 | – | 47 | 4 | – | – | 1 | – | 14 | 4 | 29 | 1 |
| 12 | Lynn, . . . . . . . | 101,245 | 9 | – | 22 | 3 | 2 | 1 | 1 | – | 13 | 9 | 139 | 4 |
| 13 | Cities, 50,000–100,000. | *478,422* | *96* | – | *53* | *8* | *2* | *2* | *3* | – | *46* | *25* | *26* | – |
| 14 | Somerville, . . . . . . | 94,950 | 17 | – | 14 | 1 | – | – | – | – | 13 | 3 | 3 | – |
| 15 | Lawrence, . . . . . . | 93,933 | 3 | – | 18 | – | – | 1 | – | – | 4 | 5 | – | – |
| 16 | Brockton, . . . . . . | 66,824 | 13 | – | 2 | – | 1 | – | 1 | – | 6 | 4 | 2 | – |
| 17 | Holyoke, . . . . . . | 63,413 | 2 | – | 1 | 1 | – | – | 1 | – | 4 | 5 | 2 | – |
| 18 | Haverhill, . . . . . . | 53,940 | 39 | – | 13 | 3 | 1 | 1 | 1 | – | 9 | 2 | 8 | – |
| 19 | Malden, . . . . . . | 52,669 | 14 | – | 4 | 3 | – | – | – | – | 2 | 4 | 8 | – |
| 20 | Chelsea, . . . . . . | 52,663 | 8 | – | 1 | – | – | – | – | – | 8 | 2 | 3 | – |
| 21 | Cities and Towns, 25,000–50,000. | *500,608* | *148* | – | *58* | *4* | *4* | *3* | *1* | – | *31* | *22* | *114* | – |
| 22 | Quincy, . . . . . . . | 47,433 | 17 | – | 3 | 1 | 2 | 2 | – | – | – | 3 | – | – |
| 23 | Pittsfield, . . . . . . | 45,907 | 28 | – | 1 | – | – | – | – | – | 6 | 2 | – | – |
| 24 | Newton, . . . . . . . | 45,895 | 20 | – | 3 | – | – | – | – | – | 3 | 1 | 4 | – |
| 25 | Salem, . . . . . . . | 42,292 | 20 | – | 13 | – | – | – | – | – | 1 | 1 | 1 | – |
| 26 | Everett, . . . . . . . | 41,282 | 13 | – | 3 | 1 | 2 | 1 | – | – | 2 | 3 | 4 | – |
| 27 | Fitchburg, . . . . . . | 41,196 | 3 | – | 2 | 1 | – | – | – | – | 6 | 4 | 1 | – |
| 28 | Brookline, . . . . . . | 38,287 | 24 | – | 2 | – | – | – | 1 | – | 3 | 2 | 42 | – |
| 29 | Taunton, . . . . . . | 37,761 | 1 | – | 3 | – | – | – | – | – | 1 | 2 | 56 | – |
| 30 | Medford, . . . . . . | 36,702 | 4 | – | 2 | – | – | – | – | – | 4 | 1 | 2 | – |
| 31 | Chicopee, . . . . . . | 34,124 | – | – | 5 | – | – | – | – | – | 1 | 1 | – | – |
| 32 | Waltham, . . . . . . | 32,107 | 13 | – | 8 | 1 | – | – | – | – | 1 | 1 | 4 | – |
| 33 | Revere, . . . . . . . | 31,035 | – | – | 12 | – | – | – | – | – | – | – | – | – |
| 34 | Beverly, . . . . . . . | 26,587 | 5 | – | 1 | – | – | – | – | – | 3 | 1 | – | – |
| 35 | Cities and Towns, 10,000–25,000. | *597,915* | *171* | *1* | *59* | *2* | *5* | *2* | *19* | – | *35* | *26* | *133* | – |
| 36 | Gloucester, . . . . . . | 24,545 | 3 | – | – | – | 1 | – | – | – | – | – | – | – |
| 37 | Northampton, . . . . . | 23,526 | 5 | – | 2 | – | – | – | – | – | 1 | – | – | – |
| 38 | North Adams, . . . . . | 22,048 | 5 | – | 2 | – | 1 | 1 | – | – | 1 | 2 | – | – |
| 39 | Peabody, . . . . . . | 21,070 | 1 | – | 2 | – | – | – | – | – | 1 | 1 | – | – |
| 40 | Westfield, . . . . . . | 20,402 | 2 | – | 7 | 1 | – | – | – | – | 5 | 1 | – | – |
| 41 | Attleboro, . . . . . . | 20,386 | 4 | – | 1 | – | – | – | – | – | – | 1 | – | – |
| 42 | Watertown, . . . . . . | 19,579 | 1 | – | – | – | – | – | – | – | 6 | – | – | – |
| 43 | Framingham, . . . . . | 18,310 | 33 | – | – | – | – | – | 2 | – | 2 | 4 | 27 | – |
| 44 | Arlington, . . . . . . | 18,004 | – | – | – | – | – | – | – | – | 2 | 1 | – | – |
| 45 | Melrose, . . . . . . | 17,860 | 3 | – | 2 | – | – | – | – | – | 1 | – | 1 | – |
| 46 | Gardner, . . . . . . | 17,786 | 31 | – | 1 | – | – | – | 5 | – | 2 | – | – | – |
| 47 | Leominster, . . . . . . | 17,701 | 10 | – | – | – | – | – | – | – | 1 | 2 | 46 | – |
| 48 | Woburn, . . . . . . | 17,336 | 2 | – | 4 | – | – | – | – | – | 2 | 2 | – | – |
| 49 | Methuen, . . . . . . | 16,161 | 3 | – | 3 | – | – | – | 1 | – | 3 | 1 | 1 | – |
| 50 | Marlborough, . . . . . | 15,814 | 4 | – | – | – | – | – | – | – | – | – | 1 | – |
| 51 | Newburyport, . . . . . | 15,614 | 8 | – | 1 | – | – | – | 4 | – | 1 | – | 5 | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Com-
and correction, these deaths, while approximately correct, are not absolutely complete.

# TO THE PUBLIC HEALTH,[1] MAY, 1919.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28–29 Tuberculosis, Pulmonary. | | 30–35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 107 | – | 50 | – | 6 | – | 332 | 1 | 810 | 8 | 696 | 383 | 88 | 94 | 42 | 5 | 812 | – | 361 | 16 | 471 | 32 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 44 | – | 17 | – | 6 | – | 67 | – | 221 | 2 | 195 | 91 | 33 | 27 | 7 | 2 | 344 | – | 144 | 3 | 53 | 8 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 3 | – | 1 | – | – | – | 3 | – | 26 | – | 26 | 14 | – | 5 | 2 | – | 36 | – | 13 | 2 | 20 | 9 | 5 |
| 34 | – | 14 | – | – | – | 29 | – | 125 | 1 | 140 | 75 | 16 | 21 | 7 | 2 | 132 | – | 43 | – | 91 | 4 | 6 |
| 8 | – | 7 | – | – | – | 5 | – | 7 | – | 22 | 15 | 4 | 3 | 3 | – | 20 | – | 5 | – | 13 | – | 7 |
| 11 | – | 1 | – | – | – | 3 | – | 23 | – | 51 | 11 | 2 | 2 | 1 | 1 | 21 | – | 14 | – | 1 | 1 | 8 |
| 7 | – | 1 | – | – | – | 2 | – | 14 | 1 | 14 | 14 | 3 | 2 | – | – | 40 | – | 12 | – | 5 | – | 9 |
| 5 | – | 4 | – | – | – | 11 | – | 22 | – | 20 | 17 | 3 | 5 | – | – | 26 | – | 7 | – | 61 | 2 | 10 |
| 2 | – | – | – | – | – | 5 | – | 23 | – | 20 | 9 | 2 | 8 | 1 | – | 10 | – | 2 | – | 1 | – | 11 |
| 1 | – | 1 | – | – | – | 3 | – | 36 | – | 13 | 9 | 2 | 1 | 2 | 1 | 15 | – | 3 | – | 10 | 1 | 12 |
| 12 | – | 9 | – | – | – | 36 | – | 88 | 3 | 78 | 41 | 9 | 11 | 7 | – | 77 | – | 35 | 2 | 95 | 2 | 13 |
| 1 | – | 1 | – | – | – | 7 | – | 25 | – | 22 | 9 | 1 | 1 | 1 | – | 11 | – | 3 | 1 | 1 | – | 14 |
| 1 | – | – | – | – | – | 10 | – | 17 | 1 | 15 | 14 | – | 1 | 5 | – | 9 | – | 6 | 1 | 4 | – | 15 |
| 6 | – | 2 | – | – | – | – | – | 2 | – | 7 | 6 | 5 | 3 | – | – | 16 | – | 8 | – | 1 | – | 16 |
| – | – | – | – | – | – | 12 | – | 18 | 1 | 4 | 5 | – | 1 | – | – | 6 | – | 2 | – | – | 1 | 17 |
| – | – | 3 | – | – | – | 1 | – | 8 | – | 8 | 2 | 2 | 2 | – | – | 26 | – | 8 | – | 83 | 1 | 18 |
| – | – | – | – | – | – | 5 | – | 14 | 1 | 12 | 3 | – | 3 | 1 | – | 6 | – | 3 | – | 6 | – | 19 |
| 4 | – | 3 | – | – | – | 1 | – | 4 | – | 10 | 2 | 1 | – | – | – | 3 | – | 5 | – | – | – | 20 |
| 5 | – | 3 | – | – | – | 36 | – | 99 | – | 74 | 36 | 12 | 13 | 6 | – | 54 | – | 13 | 2 | 69 | 2 | 21 |
| – | – | 1 | – | – | – | 1 | – | 13 | – | 9 | 6 | – | 2 | 3 | – | 3 | – | – | – | 1 | – | 22 |
| 2 | – | – | – | – | – | 24 | – | 5 | – | 5 | 2 | 2 | 2 | 1 | – | 3 | – | 2 | – | 17 | – | 23 |
| – | – | – | – | – | – | 3 | – | 4 | – | 3 | – | 4 | 2 | 1 | – | 4 | – | 1 | – | 1 | – | 24 |
| – | – | – | – | – | – | – | – | 31 | – | 8 | 3 | 2 | – | – | – | 4 | – | 3 | – | 31 | 2 | 25 |
| – | – | – | – | – | – | – | – | 6 | – | 3 | 2 | – | – | 1 | – | 7 | – | 1 | – | – | – | 26 |
| – | – | – | – | – | – | – | – | – | – | 12 | 6 | 2 | 3 | – | – | 7 | – | 2 | – | – | – | 27 |
| – | – | – | – | – | – | 4 | – | 7 | – | 6 | 1 | – | 1 | – | – | 1 | – | 1 | 1 | – | – | 28 |
| 1 | – | – | – | – | – | 1 | – | 7 | – | 6 | 4 | – | 1 | – | – | 3 | – | 2 | 1 | 1 | – | 29 |
| 1 | – | 2 | – | – | – | 2 | – | 5 | – | 3 | 3 | – | – | – | – | 8 | – | – | – | 5 | – | 30 |
| – | – | – | – | – | – | – | – | 3 | – | 8 | 7 | 1 | 1 | – | – | 4 | – | – | – | – | – | 31 |
| – | – | – | – | – | – | 1 | – | 7 | – | 4 | 2 | 1 | 1 | – | – | 2 | – | 1 | – | 5 | – | 32 |
| – | – | – | – | – | – | – | – | 7 | – | 4 | – | – | – | – | – | 6 | – | – | – | – | – | 33 |
| 1 | – | – | – | – | – | – | – | 4 | – | 5 | – | – | – | – | – | 2 | – | – | – | 8 | – | 34 |
| 6 | – | 3 | – | – | – | 88 | – | 145 | 2 | 87 | 36 | 6 | 3 | 7 | – | 56 | – | 38 | 4 | 65 | 2 | 35 |
| 3 | – | – | – | – | – | – | – | 11 | – | 3 | 1 | 1 | – | 2 | – | – | – | 2 | – | – | – | 36 |
| – | – | – | – | – | – | 1 | – | 8 | – | 1 | 2 | – | – | – | – | 1 | – | – | 1 | – | – | 37 |
| – | – | – | – | – | – | 1 | – | 4 | – | 1 | 2 | – | – | – | – | 6 | – | 1 | – | – | – | 38 |
| – | – | – | – | – | – | – | – | 3 | – | 5 | 1 | – | – | – | – | 3 | – | 1 | – | 5 | 1 | 39 |
| – | – | – | – | – | – | – | – | 7 | – | 3 | 3 | – | – | – | – | 2 | – | 1 | – | – | – | 40 |
| – | – | – | – | – | – | 1 | – | 3 | – | 6 | 1 | – | – | – | – | 4 | – | 5 | – | 1 | – | 41 |
| – | – | – | – | – | – | – | – | 5 | – | – | – | 1 | – | – | – | 2 | – | 1 | – | – | – | 42 |
| – | – | – | – | – | – | 3 | – | 1 | – | 3 | – | – | 1 | – | – | – | – | – | – | 1 | – | 43 |
| – | – | – | – | – | – | – | – | 5 | – | 1 | 1 | – | – | 1 | – | – | – | – | – | 2 | – | 44 |
| 1 | – | – | – | – | – | – | – | 11 | – | 1 | 1 | – | – | – | – | 3 | – | 3 | – | – | – | 45 |
| – | – | – | – | – | – | 26 | – | – | – | 6 | 1 | – | – | – | – | 1 | – | 1 | – | 1 | – | 46 |
| – | – | – | – | – | – | – | – | 2 | – | 4 | 1 | – | – | – | – | 3 | – | 1 | – | 9 | – | 47 |
| – | – | 1 | – | – | – | 1 | – | 5 | – | 2 | 2 | – | – | – | – | 3 | – | – | – | 8 | – | 48 |
| – | – | – | – | – | – | 7 | – | 3 | – | 1 | 2 | – | – | – | – | 1 | – | – | – | – | – | 49 |
| – | – | – | – | – | – | 2 | – | – | – | 9 | – | – | – | – | – | – | – | – | – | 1 | – | 50 |
| – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 1 | – | – | – | 1 | – | 51 |

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monwealth. Owing to the delay by physicians in returning death certificates sent them for addition

## Cases and Deaths from Diseases Dangerous

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | – | – | 1 | – | – | – | – | – | 2 | 1 | 1 | – |
| 53 | Winthrop, | 14,968 | 2 | – | 1 | – | 1 | – | – | – | 2 | 1 | 1 | – |
| 54 | Weymouth, | 14,874 | – | – | 6 | – | 1 | – | – | – | – | 1 | – | – |
| 55 | Greenfield, | 14,466 | 1 | – | 5 | – | – | – | 4 | – | 1 | – | 2 | – |
| 56 | Milford, | 14,214 | – | – | – | – | – | – | – | – | – | 1 | 1 | – |
| 57 | Wakefield, | 13,939 | 3 | – | 2 | – | – | – | – | – | – | 2 | 1 | – |
| 58 | Plymouth, | 13,587 | 5 | – | 1 | – | – | – | – | – | – | 1 | 1 | – |
| 59 | Norwood, | 13,472 | 2 | – | 1 | – | – | – | – | – | – | – | 1 | – |
| 60 | Webster, | 13,453 | – | – | – | – | – | – | – | – | – | – | 5 | – |
| 61 | Adams, | 13,378 | – | – | 4 | – | – | – | – | – | 1 | – | – | – |
| 62 | Clinton, | 13,289 | 4 | – | 1 | – | – | 1 | 1 | – | 1 | 2 | 1 | – |
| 63 | West Springfield, | 13,119 | 2 | – | 1 | 1 | – | – | – | – | – | – | – | – |
| 64 | Danvers, | 12,663 | – | – | 3 | – | – | – | – | – | – | – | – | – |
| 65 | Dedham, | 12,524 | – | – | – | – | – | – | – | – | – | – | 3 | – |
| 66 | Natick, | 12,175 | 4 | – | 1 | – | – | – | – | – | – | 1 | 1 | – |
| 67 | Saugus, | 12,061 | 3 | – | 1 | – | – | – | – | – | – | – | 9 | – |
| 68 | Easthampton, | 10,956 | 1 | – | 5 | – | – | – | – | – | – | – | – | – |
| 69 | Athol, | 10,831 | – | – | – | – | – | – | – | – | – | 1 | 9 | – |
| 70 | Bridgewater, | 10,807 | 1 | – | – | – | – | – | 1 | – | – | – | 13 | – |
| 71 | Winchester, | 10,590 | 9 | – | – | – | – | – | – | – | – | – | – | – |
| 72 | Braintree, | 10,417 | 3 | 1 | – | – | – | – | – | – | – | – | 2 | – |
| 73 | Belmont, | 10,219 | 16 | – | – | – | 1 | – | 1 | – | – | – | 1 | – |
| 74 | Palmer, | 10,191 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 75 | Towns, 5,000–10,000. | *342,000* | *51* | – | *40* | *4* | – | *1* | *11* | – | *22* | *14* | *88* | *1* |
| 76 | Towns, 2,500–5,000. | *168,565* | *9* | – | *24* | – | – | – | *1* | – | *9* | *4* | *90* | – |
| 77 | Towns under 2,500. | *211,793* | *15* | – | *17* | *1* | *1* | *1* | *1* | – | *10* | *5* | *51* | – |
| 78 | State Infirmary, | – | – | – | – | – | – | – | – | – | *1* | – | – | – |
| 79 | Camp Devens, | – | *3* | – | *4* | – | *1* | *1* | *1* | – | *7* | – | *1* | – |

In addition to the above there occurred 1 case of actinomycosis in Taunton, with two deaths, 1 in
2 cases of anthrax, 1 in Chelsea and 1 in Salem; 3 cases of dog bite, 1 in Brockton and 2 in Groton; 2
and 1 in Winthrop; 2 cases of pellagra, 1 in Boston and 1 in Foxborough; 36 cases of septic sore throat,
8 in Newburyport, 3 in Newton, 1 in Saugus, 1 in Sharon, 1 in the State Infirmary at Tewksbury, 3 in
2 in Newburyport, 1 in the State Infirmary at Tewksbury and 1 in Watertown; 8 cases of smallpox, 1 in
of tetanus, 1 in Easthampton, 1 in Malden and 1 in Pittsfield, with 1 death in Malden.

TO THE PUBLIC HEALTH — Concluded.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28–29 Tuberculosis, Pulmonary. | | 30–35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| - | - | - | - | - | - | 3 | - | - | - | 3 | - | - | - | - | - | 3 | - | 1 | - | 2 | - | 52 |
| 1 | - | - | - | - | - | - | - | 3 | - | 3 | - | - | - | - | - | - | - | - | - | 1 | - | 53 |
| - | - | - | - | - | - | - | - | 1 | - | 1 | 1 | - | - | - | - | - | - | 1 | - | - | - | 54 |
| - | - | - | - | - | - | 5 | - | 3 | - | 1 | - | 1 | - | - | - | - | - | - | 1 | - | - | 55 |
| - | - | - | - | - | - | 4 | - | 25 | - | 3 | 3 | 2 | - | 2 | - | - | - | - | 1 | - | - | 56 |
| - | - | - | - | - | - | - | - | 2 | - | 2 | 1 | - | - | - | - | - | - | - | - | - | - | 57 |
| 1 | - | - | - | - | - | 6 | - | - | - | 1 | 1 | - | - | - | - | 3 | - | - | 1 | - | - | 58 |
| - | - | - | - | - | - | - | - | 1 | - | 4 | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 59 |
| - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | 60 |
| - | - | - | - | - | - | - | - | 1 | 1 | - | 1 | - | - | - | - | - | - | - | - | - | - | 61 |
| - | - | - | - | - | - | - | - | 6 | - | 1 | - | 1 | 1 | - | - | - | - | - | - | - | - | 62 |
| - | - | - | - | - | - | - | - | 3 | 1 | 4 | 1 | - | - | - | - | 4 | - | 2 | - | - | - | 63 |
| - | - | 1 | - | - | - | - | - | 2 | - | 2 | 1 | - | - | - | - | 4 | - | 9 | - | 1 | 1 | 64 |
| - | - | 1 | - | - | - | 2 | - | 1 | - | - | - | - | - | - | - | 1 | - | 2 | - | - | - | 65 |
| - | - | - | - | - | - | 1 | - | - | - | 3 | - | - | - | - | - | 2 | - | 1 | - | - | - | 66 |
| - | - | - | - | - | - | - | - | 12 | - | 4 | 1 | - | - | - | - | 1 | - | 1 | - | - | - | 67 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 68 |
| - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | - | 69 |
| - | - | - | - | - | - | - | - | - | - | 5 | 3 | - | - | - | - | 3 | - | 1 | - | - | - | 70 |
| - | - | - | - | - | - | 3 | - | 4 | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 71 |
| - | - | - | - | - | - | 1 | - | 2 | - | 2 | 1 | - | - | 1 | - | - | - | - | - | 12 | - | 72 |
| - | - | - | - | - | - | 20 | - | 11 | - | 1 | 2 | - | - | - | - | 1 | - | - | - | 19 | - | 73 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 3 | - | - | - | 74 |
| *2* | - | *1* | - | - | - | *20* | *1* | *41* | - | *42* | *28* | *5* | *3* | *3* | - | *44* | - | *11* | *1* | *38* | *2* | 75 |
| - | - | *2* | - | - | - | *14* | - | *28* | - | *25* | *20* | *2* | *4* | *2* | - | *14* | - | *4* | *1* | *23* | *1* | 76 |
| *1* | - | - | - | - | - | *34* | - | *34* | - | *8* | *30* | *1* | *6* | *1* | *1* | *6* | - | *3* | *1* | *17* | *2* | 77 |
| - | - | - | - | - | - | - | - | - | - | *15* | *11* | *4* | *1* | - | - | *8* | - | *2* | - | - | - | 78 |
| - | - | - | - | - | - | *5* | - | *3* | - | - | *1* | - | - | - | - | *41* | - | *55* | - | - | - | 79 |

Milton and 1 in Taunton; 2 deaths from anterior poliomyelitis, 1 in New Bedford and 1 in Springfield; cases of leprosy in Boston, with 1 death in Chelsea; 3 cases of malaria, 1 in Boston, 1 in Northbridge 6 in Boston, 1 in Brookline, 1 in Framingham, 1 in Haverhill, 1 in Leominster, 1 in Lynn, 4 in Newbury, Walpole, 3 in Waltham and 1 in Watertown, with 8 deaths, 2 in Boston, 1 in Framingham, 1 in Holyoke, Boston, 1 in Cambridge, 1 in Edgartown, 2 in Gloucester, 1 in Ludlow and 2 in Springfield; and 3 cases

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | **19A** Chicken Pox. |  | **9** Diphtheria. |  | **61A** Ep. Cerebrospinal Meningitis. |  | **19B** German Measles. |  | **92** Lobar Pneumonia. |  | **6** Measles. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,991,969 | 735 | – | 483 | **23** | 25 | **20** | 30 | – | 144 | **88** | 890 | **30** |
| 2 | CITIES OVER 200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Boston, | 808,442 | 201 | – | 176 | **10** | 6 | **5** | 5 | – | 60 | **22** | 126 | **2** |
| 4 | CITIES, 150,000–200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Worcester, | 176,761 | 20 | – | 18 | **1** | – | **2** | – | – | 3 | **6** | 93 | **7** |
| 6 | CITIES, 100,000–150,000. | *687,463* | *136* | – | *74* | *3* | *3* | *2* | *6* | – | *31* | *12* | *270* | *11* |
| 7 | Fall River, | 129,416 | 23 | – | 9 | **2** | – | – | 4 | – | 6 | **3** | 109 | **7** |
| 8 | New Bedford, | 120,438 | 12 | – | 11 | **1** | – | – | – | – | 2 | **3** | 31 | – |
| 9 | Springfield, | 114,792 | 30 | – | 6 | – | – | – | 2 | – | 5 | **3** | 5 | – |
| 10 | Cambridge, | 112,176 | 63 | – | 15 | – | 1 | – | – | – | 7 | **1** | 22 | **1** |
| 11 | Lowell, | 109,396 | 5 | – | 16 | – | 2 | **2** | – | – | 8 | **2** | 19 | **2** |
| 12 | Lynn, | 101,245 | 3 | – | 17 | – | – | – | – | – | 3 | – | 84 | **1** |
| 13 | CITIES, 50,000–100,000. | *478,422* | *69* | – | *41* | *3* | *3* | *2* | *1* | – | *18* | *13* | *30* | *1* |
| 14 | Somerville, | 94,950 | 17 | – | 10 | **1** | – | – | – | – | 6 | **1** | 7 | – |
| 15 | Lawrence, | 93,933 | 6 | – | 9 | **1** | 1 | **1** | – | – | 3 | **4** | – | – |
| 16 | Brockton, | 66,824 | 17 | – | 9 | – | – | – | – | – | – | – | 4 | – |
| 17 | Holyoke, | 63,413 | 2 | – | 4 | – | – | – | – | – | – | **1** | – | – |
| 18 | Haverhill, | 53,940 | 16 | – | 4 | – | – | – | 1 | – | 3 | **3** | 16 | **1** |
| 19 | Malden, | 52,669 | 9 | – | – | **1** | 2 | **1** | – | – | 5 | **2** | 2 | – |
| 20 | Chelsea, | 52,663 | 2 | – | 5 | – | – | – | – | – | 1 | **2** | 1 | – |
| 21 | CITIES AND TOWNS, 25,000–50,000. | *500,608* | *83* | – | *56* | *1* | *3* | *3* | *1* | – | *8* | *14* | *45* | *3* |
| 22 | Quincy, | 47,433 | 9 | – | 10 | – | 2 | – | – | – | 1 | **2** | 4 | – |
| 23 | Pittsfield, | 45,907 | 11 | – | 1 | – | – | – | – | – | 2 | **1** | 1 | – |
| 24 | Newton, | 45,895 | 24 | – | 5 | – | – | – | 1 | – | 1 | – | 1 | – |
| 25 | Salem, | 42,292 | 8 | – | 8 | **1** | 1 | **1** | – | – | – | **1** | 1 | – |
| 26 | Everett, | 41,282 | 13 | – | 3 | – | – | – | – | – | – | **1** | 1 | – |
| 27 | Fitchburg, | 41,196 | 3 | – | 1 | – | – | – | – | – | 1 | **3** | – | – |
| 28 | Brookline, | 38,287 | 5 | – | 2 | – | – | – | – | – | 1 | **1** | 14 | – |
| 29 | Taunton, | 37,761 | – | – | 4 | – | – | – | – | – | – | **3** | 18 | **3** |
| 30 | Medford, | 36,702 | 2 | – | 3 | – | – | – | – | – | – | **1** | – | – |
| 31 | Chicopee, | 34,124 | – | – | 6 | – | – | – | – | – | – | – | – | – |
| 32 | Waltham, | 32,107 | 7 | – | 1 | – | – | **2** | – | – | 2 | **1** | 5 | – |
| 33 | Revere, | 31,035 | – | – | 12 | – | – | – | – | – | – | – | – | – |
| 34 | Beverly, | 26,587 | 1 | – | – | – | – | – | – | – | – | – | – | – |
| 35 | CITIES AND TOWNS, 10,000–25,000. | *597,915* | *177* | – | *46* | *3* | *3* | *2* | *4* | – | *13* | *10* | *102* | *3* |
| 36 | Gloucester, | 24,545 | 2 | – | – | – | – | – | – | – | – | **1** | – | – |
| 37 | Northampton, | 23,526 | 3 | – | 2 | **1** | – | – | – | – | 1 | **1** | 1 | – |
| 38 | North Adams, | 22,048 | 1 | – | – | – | – | – | – | – | 3 | **1** | 1 | – |
| 39 | Peabody, | 21,070 | 1 | – | 4 | – | – | – | – | – | – | – | – | – |
| 40 | Westfield, | 20,402 | 9 | – | 3 | – | – | – | – | – | 3 | – | 1 | – |
| 41 | Attleboro, | 20,386 | 2 | – | 2 | – | – | – | – | – | – | – | 1 | – |
| 42 | Watertown, | 19,579 | 9 | – | 1 | – | – | – | – | – | 1 | – | 2 | – |
| 43 | Framingham, | 18,310 | 28 | – | 2 | – | – | – | – | – | – | – | 4 | – |
| 44 | Arlington, | 18,004 | 2 | – | 1 | – | 1 | – | – | – | – | – | – | – |
| 45 | Melrose, | 17,860 | 2 | – | 2 | – | – | – | 1 | – | – | – | – | – |
| 46 | Gardner, | 17,786 | 23 | – | 3 | **1** | – | – | – | – | – | – | – | – |
| 47 | Leominster, | 17,701 | 8 | – | 1 | – | 1 | **1** | 1 | – | – | – | 32 | – |
| 48 | Woburn, | 17,336 | – | – | – | – | – | – | – | – | 1 | **2** | 1 | – |
| 49 | Methuen, | 16,161 | 3 | – | – | – | – | – | – | – | – | **1** | – | – |
| 50 | Marlborough, | 15,814 | 6 | – | 1 | – | – | – | – | – | – | – | 1 | – |
| 51 | Newburyport, | 15,614 | – | – | 2 | **1** | – | – | 1 | – | 1 | **1** | 2 | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Com-
and correction, these deaths, while approximately correct, are not absolutely complete.

## TO THE PUBLIC HEALTH,[1] JUNE, 1919.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 75A Trachoma. | | 19C Mumps. | | 7 Scarlet Fever. | | 28–29 Tuberculosis, Pulmonary. | | 30–35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 98 | – | 32 | – | 5 | – | 277 | – | 492 | 6 | 673 | 316 | 77 | 46 | 45 | 6 | 842 | 1 | 266 | 25 | 467 | 28 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 46 | – | 10 | – | 3 | – | 89 | – | 133 | 1 | 194 | 71 | 18 | 10 | 3 | – | 407 | – | 127 | 9 | 59 | 5 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 5 | – | 3 | – | – | – | – | – | 22 | – | 27 | 17 | 2 | 2 | – | – | 28 | – | 13 | 4 | 44 | 8 | 5 |
| *25* | – | *8* | – | – | – | *23* | – | *65* | *2* | *156* | *50* | *19* | *15* | *12* | *2* | *110* | – | *44* | *2* | *68* | *4* | 6 |
| 9 | – | 5 | – | – | – | 1 | – | 3 | – | 29 | 8 | 3 | 2 | 9 | 2 | 20 | – | 5 | 1 | 15 | – | 7 |
| 11 | – | – | – | – | – | 1 | – | 16 | 1 | 56 | 11 | 4 | 5 | – | – | 13 | – | 9 | – | 15 | 2 | 8 |
| 1 | – | 2 | – | – | – | 2 | – | 10 | – | 18 | 5 | 4 | 2 | 2 | – | 24 | – | 7 | – | 3 | – | 9 |
| 1 | – | 1 | – | – | – | 17 | – | 6 | – | 19 | 11 | – | 1 | – | – | 19 | – | 6 | – | 28 | 1 | 10 |
| 2 | – | – | – | – | – | 1 | – | 13 | – | 23 | 8 | 7 | 4 | – | – | 13 | – | 7 | – | – | – | 11 |
| 1 | – | – | – | – | – | 1 | – | 17 | 1 | 11 | 7 | 1 | 1 | 1 | – | 21 | – | 10 | 1 | 7 | 1 | 12 |
| *11* | – | *6* | – | *1* | – | *15* | – | *51* | *1* | *67* | *45* | *12* | *6* | *11* | *3* | *82* | – | *22* | *1* | *49* | *2* | 13 |
| 1 | – | 1 | – | – | – | 6 | – | 9 | – | 15 | 7 | 7 | 4 | 2 | 1 | 10 | – | 2 | – | 10 | – | 14 |
| 1 | – | – | – | 1 | – | 1 | – | 9 | – | 8 | 12 | – | – | 4 | 2 | 4 | – | 3 | – | – | 2 | 15 |
| 4 | – | 2 | – | – | – | 1 | – | 9 | – | 10 | 5 | – | – | 1 | – | 14 | – | 2 | 1 | – | – | 16 |
| 2 | – | 1 | – | – | – | – | – | 12 | 1 | 7 | 6 | – | 1 | 2 | – | 5 | – | 1 | – | – | – | 17 |
| 2 | – | – | – | – | – | – | – | 1 | – | 13 | 6 | 2 | – | 1 | – | 34 | – | 10 | – | 36 | – | 18 |
| – | – | – | – | – | – | 7 | – | 8 | – | 9 | 5 | 2 | 1 | 1 | – | 8 | – | 1 | – | 3 | – | 19 |
| 1 | – | 2 | – | – | – | – | – | 3 | – | 5 | 4 | 1 | – | – | – | 7 | – | 3 | – | – | – | 20 |
| *5* | – | *2* | – | *1* | – | *28* | – | *49* | *1* | *64* | *29* | *7* | *3* | *5* | *1* | *56* | *1* | *16* | *3* | *83* | *3* | 21 |
| – | – | – | – | – | – | – | – | 9 | – | 7 | 2 | – | – | – | – | 13 | – | – | – | 4 | – | 22 |
| 1 | – | – | – | – | – | 6 | – | 2 | – | 5 | 2 | 1 | – | 1 | – | 2 | – | 5 | – | 56 | 1 | 23 |
| – | – | – | – | 1 | – | 6 | – | 1 | – | 5 | 1 | – | – | 1 | – | 2 | – | – | – | 2 | – | 24 |
| – | – | – | – | – | – | – | – | 8 | – | 2 | 3 | 2 | 1 | – | – | 2 | – | 1 | – | 9 | – | 25 |
| 1 | – | – | – | – | – | 2 | – | 8 | – | 5 | – | 1 | 1 | 1 | 1 | 2 | – | – | – | 1 | – | 26 |
| – | – | – | – | – | – | – | – | 2 | – | 9 | 5 | – | – | – | – | 2 | 1 | 2 | – | – | – | 27 |
| – | – | – | – | – | – | 14 | – | 3 | – | 3 | 1 | 1 | 1 | – | – | 1 | – | 1 | – | 2 | – | 28 |
| 2 | – | 2 | – | – | – | – | – | 2 | – | 6 | 3 | 2 | – | 1 | – | 18 | – | 4 | 3 | 2 | – | 29 |
| – | – | – | – | – | – | – | – | 3 | – | 7 | 3 | – | – | – | – | 2 | – | – | – | 1 | 2 | 30 |
| 1 | – | – | – | – | – | – | – | – | – | 6 | 6 | – | – | – | – | 7 | – | 1 | – | – | – | 31 |
| – | – | – | – | – | – | – | – | 6 | 1 | 3 | 2 | – | – | – | – | 3 | – | – | – | 3 | – | 32 |
| – | – | – | – | – | – | – | – | 3 | – | 5 | 1 | – | – | – | – | 2 | – | 1 | – | – | – | 33 |
| – | – | – | – | – | – | – | – | 2 | – | 1 | – | – | – | 1 | – | – | – | 1 | – | 3 | – | 34 |
| *6* | – | *3* | – | – | – | *52* | – | *76* | *1* | *74* | *30* | *2* | *2* | *7* | – | *64* | – | *16* | *5* | *47* | *1* | 35 |
| – | – | 1 | – | – | – | 2 | – | 17 | 1 | 2 | 1 | – | – | 1 | – | 1 | – | – | – | 1 | 1 | 36 |
| – | – | – | – | – | – | – | – | 2 | – | 1 | 3 | – | – | – | – | 1 | – | – | 1 | – | – | 37 |
| – | – | – | – | – | – | – | – | – | – | 3 | 3 | – | – | – | – | 4 | – | – | – | – | – | 38 |
| 2 | – | – | – | – | – | – | – | 2 | – | 2 | 2 | – | – | – | – | 5 | – | 1 | 1 | 7 | – | 39 |
| 1 | – | – | – | – | – | 1 | – | 3 | – | 2 | 2 | – | – | – | – | 1 | – | 2 | – | – | – | 40 |
| – | – | – | – | – | – | – | – | 2 | – | 2 | 4 | – | – | – | – | 4 | – | 3 | – | 2 | – | 41 |
| – | – | – | – | – | – | 2 | – | – | – | 2 | – | – | – | – | – | 2 | – | 1 | – | – | – | 42 |
| – | – | – | – | – | – | 1 | – | 4 | – | 3 | – | – | – | 1 | – | 1 | – | – | – | – | – | 43 |
| – | – | – | – | – | – | – | – | 3 | – | 2 | – | – | – | – | – | – | – | – | 1 | 4 | – | 44 |
| – | – | – | – | – | – | – | – | 6 | – | 1 | – | – | – | – | – | 2 | – | – | – | 1 | – | 45 |
| – | – | – | – | – | – | 11 | – | 2 | – | 6 | 1 | – | – | – | – | – | – | 1 | 1 | – | – | 46 |
| – | – | – | – | – | – | – | – | 1 | – | 2 | – | – | – | – | – | 3 | – | – | – | 8 | – | 47 |
| – | – | – | – | – | – | 1 | – | – | – | 2 | 1 | – | – | – | – | 1 | – | – | – | – | – | 48 |
| 1 | – | – | – | – | – | 2 | – | – | – | 2 | 1 | 1 | – | – | – | 1 | – | – | – | – | – | 49 |
| – | – | – | – | – | – | 2 | – | – | – | 3 | 1 | – | – | – | – | 2 | – | – | – | 1 | – | 50 |
| – | – | – | – | – | – | – | – | – | – | 2 | 1 | – | – | – | – | 1 | – | – | – | – | – | 51 |

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monwealth. Owing to the delay by physicians in returning death certificates sent them for addition

## Cases and Deaths from Diseases Dangerous

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | – | – | – | – | – | – | – | – | – | – | – | – |
| 53 | Winthrop, | 14,968 | 2 | – | – | – | – | – | – | – | 1 | – | – | – |
| 54 | Weymouth, | 14,874 | – | – | 4 | – | 1 | – | – | – | – | – | – | – |
| 55 | Greenfield, | 14,466 | 3 | – | 2 | – | – | – | – | – | – | 1 | 1 | – |
| 56 | Milford, | 14,214 | – | – | 1 | – | – | – | – | – | – | – | 1 | – |
| 57 | Wakefield, | 13,939 | – | – | 2 | – | – | – | – | – | 1 | – | – | – |
| 58 | Plymouth, | 13,587 | 1 | – | 1 | – | – | – | – | – | – | 1 | 1 | – |
| 59 | Norwood, | 13,472 | 16 | – | 1 | – | – | – | – | – | – | – | 1 | – |
| 60 | Webster, | 13,453 | 3 | – | 1 | – | – | 1 | – | – | – | – | 13 | – |
| 61 | Adams, | 13,378 | – | – | – | – | – | – | – | – | – | – | – | – |
| 62 | Clinton, | 13,289 | – | – | 1 | – | – | – | – | – | – | 1 | 1 | 1 |
| 63 | West Springfield, | 13,119 | – | – | – | – | – | – | – | – | – | – | – | – |
| 64 | Danvers, | 12,663 | 5 | – | 1 | – | – | – | – | – | – | – | – | – |
| 65 | Dedham, | 12,524 | – | – | 3 | – | – | – | – | – | – | – | – | – |
| 66 | Natick, | 12,175 | 7 | – | – | – | – | – | – | – | – | – | – | – |
| 67 | Saugus, | 12,061 | – | – | 2 | – | – | – | 1 | – | – | – | 25 | 1 |
| 68 | Easthampton, | 10,956 | 8 | – | – | – | – | – | – | – | – | – | – | – |
| 69 | Athol, | 10,831 | 1 | – | – | – | – | – | – | – | – | – | 8 | 1 |
| 70 | Bridgewater, | 10,807 | – | – | – | – | – | – | – | – | – | – | 4 | – |
| 71 | Winchester, | 10,590 | 3 | – | 1 | – | – | – | – | – | – | – | – | – |
| 72 | Braintree, | 10,417 | 2 | – | – | – | – | – | – | – | – | – | 1 | – |
| 73 | Belmont, | 10,219 | 27 | – | – | – | – | – | – | – | 1 | – | – | – |
| 74 | Palmer, | 10,191 | – | – | 2 | – | – | – | – | – | – | – | – | – |
| 75 | Towns, 5,000-10,000. | *342,000* | *29* | – | *35* | *1* | *4* | *1* | *5* | – | *5* | *6* | *87* | – |
| 76 | Towns, 2,500-5,000. | *188,565* | *3* | – | *24* | *1* | *2* | *1* | *1* | – | – | *2* | *80* | *3* |
| 77 | Towns under 2,500. | *211,793* | *17* | – | *10* | – | *1* | *2* | *7* | – | *2* | *2* | *57* | – |
| 78 | State Infirmary, | – | – | – | *2* | – | – | – | – | – | *1* | *1* | – | – |
| 79 | Camp Devens, | – | – | – | *1* | – | – | – | – | – | *3* | – | – | – |

In addition to the above there occurred 3 cases of anterior poliomyelitis, 1 in Belmont, 1 in Everett and 2 in Lowell and 1 in Worcester; 1 case of dysentery in North Adams; 8 cases of malaria, 1 in Boston, 1 with 1 death in Lowell; 3 cases of pellagra, 1 in Danvers, 1 in Somerville and 1 in Worcester, with 2 deaths, septic sore throat, 1 in Boston, 1 in Brookline, 1 in Lowell, 1 in Newburyport and 1 in Somerville, with 1 in Lowell and 3 in Ludlow; 1 case of tetanus in Dedham, with 1 death in Somerville; and 1 case of

TO THE PUBLIC HEALTH — Concluded.

| 38A | | 38B | | 75A | | 19C | | 7 | | 28–29 | | 30–35 | | 1 | | 38C | | 37 | | 8 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Trachoma. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| – | – | – | – | – | – | – | – | – | – | 2 | – | – | – | – | – | 6 | – | – | – | – | – | 52 |
| – | – | 1 | – | – | – | 3 | – | 7 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | 53 |
| – | – | – | – | – | – | – | – | – | – | 3 | 1 | – | – | – | – | 3 | – | – | – | – | – | 54 |
| – | – | – | – | – | – | 1 | – | 2 | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 55 |
| – | – | – | – | – | – | 5 | – | 7 | – | 2 | – | – | 1 | – | – | 7 | – | – | – | 2 | – | 56 |
| – | – | – | – | – | – | – | – | 1 | – | 1 | – | – | – | – | – | – | – | – | – | – | – | 57 |
| – | – | – | – | – | – | 5 | – | – | – | – | 1 | – | – | – | – | 1 | – | 1 | – | – | – | 58 |
| 2 | – | – | – | – | – | – | – | 1 | – | 2 | – | – | – | – | – | – | – | – | – | – | – | 59 |
| – | – | – | – | – | – | 1 | – | – | – | 1 | – | – | – | – | – | 2 | – | 1 | – | – | – | 60 |
| – | – | 1 | – | – | – | – | – | – | – | 1 | – | – | – | 2 | – | – | – | – | – | – | – | 61 |
| – | – | – | – | – | – | – | – | 5 | – | 1 | – | – | – | – | – | 2 | – | – | – | – | – | 62 |
| – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | 2 | – | – | – | – | – | 63 |
| – | – | – | – | – | – | – | – | – | – | 3 | 1 | – | – | – | – | – | – | – | – | – | – | 64 |
| – | – | – | – | – | – | 2 | – | – | – | 2 | – | – | – | 1 | – | 4 | – | 3 | – | – | – | 65 |
| – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 3 | – | 3 | – | – | – | 66 |
| – | – | – | – | – | – | – | – | 5 | – | 1 | – | – | – | 1 | – | – | – | – | 1 | – | – | 67 |
| – | – | – | – | – | – | – | – | 1 | – | 3 | – | – | – | – | – | – | – | – | – | – | – | 68 |
| – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | 1 | – | – | – | – | – | 69 |
| – | – | – | – | – | – | – | – | 1 | – | 5 | 3 | – | – | – | – | 1 | – | – | – | – | – | 70 |
| – | – | – | – | – | – | 1 | – | – | – | 2 | 1 | – | – | – | – | 1 | – | – | – | – | – | 71 |
| – | – | – | – | – | – | – | – | – | – | – | 1 | – | 1 | 1 | – | – | – | – | – | 16 | – | 72 |
| – | – | – | – | – | – | 12 | – | 4 | – | 6 | – | 1 | – | – | – | 1 | – | – | – | 5 | – | 73 |
| – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | – | 74 |
| – | – | – | – | – | – | *33* | – | *31* | – | *36* | *27* | *10* | *3* | *1* | – | *37* | – | *4* | *1* | *28* | – | 75 |
| – | – | – | – | – | – | *7* | – | *47* | – | *28* | *12* | *2* | *3* | *5* | – | *12* | – | *3* | – | *17* | *3* | 76 |
| – | – | – | – | – | – | *30* | – | *17* | – | *14* | *26* | *1* | *2* | *1* | – | *15* | – | *2* | – | *69* | *2* | 77 |
| – | – | – | – | – | – | – | – | – | – | *13* | *9* | *4* | – | – | – | *14* | – | *1* | – | *3* | – | 78 |
| – | – | – | – | – | – | – | – | *1* | – | – | – | – | – | – | – | *17* | – | *18* | – | – | – | 79 |

1 in Melrose, with 1 death in Norwood; 6 cases of dog bite, 1 in Berkley, 1 in Brockton, 1 in Dighton, in Dedham, 1 in Franklin, 1 in Haverhill, 1 in Lowell, 1 in Needham, 1 in Northbridge and 1 in Wellesley, 1 in Danvers and 1 in Worcester; 1 case of rabies in Fall River, with 1 death in Fall River; 5 cases of 1 death in Boston; 11 cases of smallpox, 1 in Belmont, 3 in Boston, 1 in Framingham, 2 in Gloucester, trichinosis in Boston.

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. |  | 9 Diphtheria. |  | 61A Ep. Cerebrospinal Meningitis. |  | 19B German Measles. |  | 92 Lobar Pneumonia. |  | 6 Measles. |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, | 3,991,969 | 360 | 1 | 427 | 24 | 23 | 11 | 16 | – | 109 | 43 | 468 | 7 |
| 2 | Cities over 200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 | Boston, | 808,442 | 121 | – | 169 | 8 | 4 | 3 | 3 | – | 44 | 11 | 89 | 2 |
| 4 | Cities, 150,000-200,000. |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 | Worcester, | 176,761 | 1 | – | 15 | – | – | – | – | – | 4 | 3 | 38 | 2 |
| 6 | Cities, 100,000-150,000. | *687,463* | *75* | – | *71* | *6* | *4* | *2* | *1* | – | *17* | *8* | *136* | *2* |
| 7 | Fall River, | 129,416 | 13 | – | 14 | – | 2 | 1 | – | – | 1 | – | 43 | 2 |
| 8 | New Bedford, | 120,438 | 9 | – | 13 | 2 | – | – | 1 | – | 2 | 1 | 38 | – |
| 9 | Springfield, | 114,792 | 7 | – | 6 | 1 | – | – | – | – | 1 | 1 | 1 | – |
| 10 | Cambridge, | 112,176 | 35 | – | 15 | – | 1 | – | – | – | 7 | – | 24 | – |
| 11 | Lowell, | 109,396 | 3 | – | 9 | 3 | 1 | 1 | – | – | 3 | 2 | 13 | – |
| 12 | Lynn, | 101,245 | 8 | – | 14 | – | – | – | – | – | 3 | 4 | 17 | – |
| 13 | Cities, 50,000-100,000. | *478,422* | *34* | *1* | *40* | *4* | *5* | *3* | *1* | – | *14* | *7* | *17* | *1* |
| 14 | Somerville, | 94,950 | 13 | – | 10 | – | 1 | 1 | – | – | 1 | 1 | – | – |
| 15 | Lawrence, | 93,933 | 6 | 1 | 5 | – | 2 | – | – | – | 2 | 2 | – | – |
| 16 | Brockton, | 66,824 | 4 | – | 4 | 1 | – | 1 | – | – | 1 | 1 | 10 | – |
| 17 | Holyoke, | 63,413 | – | – | – | – | 1 | 1 | 1 | – | 1 | 2 | – | – |
| 18 | Haverhill, | 53,940 | 7 | – | 18 | 2 | 1 | – | – | – | 8 | – | 3 | 1 |
| 19 | Malden, | 52,669 | 4 | – | – | – | – | – | – | – | – | – | 2 | – |
| 20 | Chelsea, | 52,663 | – | – | 3 | 1 | – | – | – | – | 1 | 1 | 2 | – |
| 21 | Cities and Towns, 25,000-50,000. | *500,608* | *42* | – | *48* | *3* | *4* | *1* | *4* | – | *14* | *8* | *30* | – |
| 22 | Quincy, | 47,433 | 5 | – | 10 | – | – | – | 1 | – | 1 | 1 | 1 | – |
| 23 | Pittsfield, | 45,907 | 8 | – | – | – | 3 | – | 1 | – | 1 | 1 | 1 | – |
| 24 | Newton, | 45,895 | 14 | – | 4 | – | – | – | – | – | 2 | 1 | 2 | – |
| 25 | Salem, | 42,292 | 4 | – | 9 | 1 | – | – | – | – | 4 | 1 | 1 | – |
| 26 | Everett, | 41,282 | 1 | – | 3 | – | 1 | 1 | – | – | 3 | 2 | 1 | – |
| 27 | Fitchburg, | 41,196 | 1 | – | 3 | 1 | – | – | – | – | 1 | 1 | 4 | – |
| 28 | Brookline, | 38,287 | 2 | – | – | – | – | – | – | – | 1 | – | 7 | – |
| 29 | Taunton, | 37,761 | – | – | – | – | – | – | – | – | – | 1 | 1 | – |
| 30 | Medford, | 36,702 | – | – | – | – | – | – | 2 | – | – | – | – | – |
| 31 | Chicopee, | 34,124 | – | – | 3 | 1 | – | – | – | – | 1 | – | 1 | – |
| 32 | Waltham, | 32,107 | 4 | – | 6 | – | – | – | – | – | – | – | 11 | – |
| 33 | Revere, | 31,035 | – | – | 8 | – | – | – | – | – | – | – | – | – |
| 34 | Beverly, | 26,587 | 3 | – | 2 | – | – | – | – | – | – | – | – | – |
| 35 | Cities and Towns, 10,000-25,000. | *597,915* | *39* | – | *47* | *1* | *3* | *1* | *6* | – | *7* | *4* | *52* | – |
| 36 | Gloucester, | 24,545 | – | – | – | – | – | – | – | – | – | – | 1 | – |
| 37 | Northampton, | 23,526 | – | – | – | – | – | 1 | – | – | 1 | – | – | – |
| 38 | North Adams, | 22,048 | – | – | – | – | – | – | – | – | – | – | – | – |
| 39 | Peabody, | 21,070 | – | – | 4 | – | – | – | – | – | – | – | – | – |
| 40 | Westfield, | 20,402 | 2 | – | 5 | – | – | – | – | – | – | – | – | – |
| 41 | Attleboro, | 20,386 | 2 | – | – | – | – | – | – | – | – | – | 1 | – |
| 42 | Watertown, | 19,579 | – | – | 3 | – | – | – | – | – | 1 | – | 1 | – |
| 43 | Framingham, | 18,310 | 10 | – | 1 | – | – | – | – | – | – | – | – | – |
| 44 | Arlington, | 18,004 | 1 | – | 2 | – | – | – | – | – | – | 1 | – | – |
| 45 | Melrose, | 17,860 | 3 | – | 1 | – | – | – | 1 | – | – | – | – | – |
| 46 | Gardner, | 17,786 | – | – | 5 | – | – | – | – | – | 1 | 1 | 1 | – |
| 47 | Leominster, | 17,701 | 3 | – | 1 | – | – | – | – | – | 1 | 1 | 20 | – |
| 48 | Woburn, | 17,336 | – | – | 1 | 1 | – | – | – | – | – | – | – | – |
| 49 | Methuen, | 16,161 | 1 | – | – | – | – | – | – | – | – | – | – | – |
| 50 | Marlborough, | 15,814 | 2 | – | – | – | – | – | 2 | – | – | – | 3 | – |
| 51 | Newburyport, | 15,614 | – | – | – | – | 2 | – | – | – | – | – | – | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Com-
and correction, these deaths, while approximately correct, are not absolutely complete.

# TO THE PUBLIC HEALTH,[1] JULY, 1919.

| 38A | | 38B | | 19C | | 7 | | 28-29 | | 30-35 | | 1 | | 38C | | 37 | | 8 | | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | Influenza. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 109 | - | 26 | - | 156 | - | 268 | 5 | 549 | 327 | 69 | 63 | 69 | 3 | 1033 | 1 | 330 | 18 | 471 | 30 | 31 | 8 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 39 | - | 11 | - | 55 | - | 55 | - | 147 | 83 | 20 | 13 | 5 | - | 404 | - | 142 | 6 | 89 | 7 | 7 | 3 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 7 | - | 2 | - | 5 | - | 8 | - | 40 | 18 | 4 | 5 | 2 | - | 81 | - | 27 | 1 | 34 | 3 | 6 | 1 | 5 |
| *41* | - | *6* | - | *15* | - | *55* | *3* | *133* | *56* | *12* | *14* | *19* | *1* | *133* | - | *35* | *5* | *66* | *8* | *9* | *1* | 6 |
| 6 | - | 3 | - | 2 | - | 6 | 1 | 28 | 12 | - | 1 | 9 | - | 21 | - | 1 | 2 | 16 | - | 1 | 1 | 7 |
| 20 | - | - | - | 2 | - | 4 | 1 | 26 | 7 | 2 | 3 | - | - | 15 | - | 6 | 2 | 10 | 4 | 2 | - | 8 |
| - | - | 1 | - | 1 | - | 4 | 1 | 16 | 12 | 2 | 2 | 1 | - | 41 | - | 14 | - | 5 | - | - | - | 9 |
| 6 | - | - | - | 4 | - | 15 | - | 24 | 14 | 2 | 1 | 2 | - | 12 | - | 5 | 1 | 11 | 1 | 4 | - | 10 |
| 4 | - | 2 | - | 5 | - | 12 | - | 24 | 5 | 5 | 5 | - | - | 29 | - | 5 | - | 6 | 1 | 1 | - | 11 |
| 5 | - | - | - | 1 | - | 14 | - | 14 | 6 | 1 | 2 | 7 | 1 | 15 | - | 4 | - | 18 | 2 | 1 | - | 12 |
| *11* | - | *2* | - | *15* | - | *35* | *1* | *61* | *28* | *13* | *9* | *18* | *1* | *81* | *1* | *26* | *1* | *58* | *3* | *1* | *1* | 13 |
| 1 | - | - | - | 1 | - | 9 | - | 11 | 7 | 1 | - | - | - | 10 | - | - | - | 10 | 1 | - | - | 14 |
| 1 | - | - | - | 2 | - | 8 | 1 | 9 | 8 | 7 | 4 | 5 | - | 5 | - | 12 | - | 2 | - | - | - | 15 |
| 1 | - | 1 | - | 1 | - | - | - | 10 | 1 | - | - | 1 | - | 13 | - | 1 | - | 6 | - | - | - | 16 |
| - | - | - | - | - | - | 9 | - | 11 | 2 | 1 | 3 | - | - | 3 | 1 | - | 1 | - | - | - | - | 17 |
| 3 | - | - | - | 1 | - | - | - | 7 | 5 | 1 | - | 3 | 1 | 39 | - | 11 | - | 34 | 1 | 1 | 1 | 18 |
| 1 | - | - | - | 9 | - | 8 | - | 5 | 2 | 2 | 1 | 8 | - | 4 | - | - | - | 5 | 1 | - | - | 19 |
| 4 | - | 1 | - | 1 | - | 1 | - | 8 | 3 | 1 | 1 | 1 | - | 7 | - | 2 | - | 1 | - | - | - | 20 |
| *8* | - | *2* | - | *15* | - | *33* | - | *47* | *36* | *6* | *7* | *7* | - | *82* | - | *18* | *2* | *112* | *3* | *5* | *1* | 21 |
| - | - | - | - | 2 | - | 5 | - | 4 | 5 | - | - | 1 | - | 5 | - | 2 | - | 3 | 1 | 1 | - | 22 |
| - | - | - | - | 3 | - | 4 | - | 5 | 6 | 2 | 2 | - | - | 9 | - | 2 | - | 78 | 1 | 2 | 1 | 23 |
| - | - | - | - | 4 | - | 1 | - | 3 | 2 | 1 | - | 1 | - | 3 | - | - | - | 13 | - | - | - | 24 |
| - | - | - | - | 2 | - | 8 | - | 9 | 3 | - | - | 1 | - | 6 | - | - | - | 4 | 1 | 1 | - | 25 |
| - | - | 1 | - | 1 | - | 1 | - | 5 | 3 | 3 | 1 | 2 | - | 6 | - | 1 | - | - | - | 1 | - | 26 |
| - | - | - | - | - | - | 2 | - | 5 | 1 | - | - | - | - | 9 | - | 3 | - | 1 | - | - | - | 27 |
| 1 | - | - | - | 2 | - | 1 | - | 4 | 3 | - | 2 | - | - | 3 | - | 2 | - | 7 | - | - | - | 28 |
| - | - | - | - | - | - | 2 | - | 6 | 4 | - | - | - | - | 15 | - | 2 | 2 | - | - | - | - | 29 |
| - | - | - | - | - | - | 3 | - | - | 3 | - | - | 2 | - | 6 | - | 4 | - | 1 | - | - | - | 30 |
| 2 | - | - | - | - | - | 1 | - | 3 | 6 | - | 1 | - | - | 3 | - | - | - | - | - | - | - | 31 |
| - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | 4 | - | 1 | - | 3 | - | - | - | 32 |
| - | - | - | - | - | - | 3 | - | 2 | - | - | - | - | - | 11 | - | 1 | - | - | - | - | - | 33 |
| - | - | 1 | - | 1 | - | 1 | - | 1 | - | - | 1 | - | - | 2 | - | - | - | 2 | - | - | - | 34 |
| *5* | - | *3* | - | *15* | - | *45* | - | *64* | *40* | *4* | *6* | *9* | *1* | *134* | - | *48* | *2* | *46* | *2* | *2* | - | 35 |
| - | - | - | - | - | - | 4 | - | 3 | 1 | - | - | - | - | - | - | 2 | - | 1 | 1 | 1 | - | 36 |
| - | - | - | - | 1 | - | 5 | - | 3 | 4 | - | - | - | - | 4 | - | - | 1 | - | - | - | - | 37 |
| - | - | - | - | - | - | - | - | 2 | 1 | 1 | - | 1 | - | 6 | - | - | - | 4 | - | - | - | 38 |
| - | - | - | - | - | - | 1 | - | 2 | - | - | 1 | - | - | 4 | - | - | 1 | 4 | - | - | - | 39 |
| 1 | - | - | - | - | - | 3 | - | 2 | 6 | - | - | - | - | 4 | - | 3 | - | - | - | - | - | 40 |
| - | - | - | - | - | - | - | - | 4 | 3 | - | - | - | - | 2 | - | - | - | - | - | - | - | 41 |
| - | - | - | - | 1 | - | 1 | - | 1 | 1 | 1 | 1 | - | - | 3 | - | - | - | - | - | - | - | 42 |
| - | - | 1 | - | 1 | - | 2 | - | 1 | 2 | - | - | - | - | 70 | - | 23 | - | - | - | - | - | 43 |
| - | - | - | - | - | - | 2 | - | 4 | 1 | - | - | 1 | - | - | - | 2 | - | - | - | - | - | 44 |
| - | - | - | - | - | - | 1 | - | 1 | - | - | - | - | - | 3 | - | 1 | - | 12 | - | - | - | 45 |
| - | - | - | - | - | - | 2 | - | 4 | 1 | - | - | - | - | 2 | - | - | - | - | - | - | - | 46 |
| 2 | - | - | - | - | - | 1 | - | 2 | - | - | - | 1 | 1 | 1 | - | - | - | 4 | - | - | - | 47 |
| - | - | - | - | - | - | - | - | - | - | - | - | 2 | - | 2 | - | - | - | - | - | - | - | 48 |
| - | - | - | - | 1 | - | - | - | 1 | 1 | - | - | - | - | 1 | - | - | - | 1 | - | - | - | 49 |
| - | - | - | - | 1 | - | - | - | 3 | 1 | - | - | 1 | - | 2 | - | - | - | 5 | - | - | - | 50 |
| - | - | - | - | - | - | - | - | 1 | - | - | 1 | - | - | - | - | - | - | - | 1 | - | - | 51 |

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monwealth. Owing to the delay by physicians in returning death certificates sent them for addition

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | CITIES AND TOWNS GROUPED IN ORDER OF POPULATION. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | – | – | – | – | – | – | – | – | – | – | – | – |
| 53 | Winthrop, | 14,968 | 4 | – | 1 | – | 1 | – | – | – | – | 1 | 1 | – |
| 54 | Weymouth, | 14,874 | – | – | – | – | – | – | – | – | – | – | – | – |
| 55 | Greenfield, | 14,466 | 3 | – | 1 | – | – | – | – | – | – | – | – | – |
| 56 | Milford, | 14,214 | – | – | 3 | – | – | – | – | – | – | – | – | – |
| 57 | Wakefield, | 13,939 | – | – | – | – | – | – | – | – | – | – | – | – |
| 58 | Plymouth, | 13,587 | – | – | – | – | – | – | – | – | – | – | 4 | – |
| 59 | Norwood, | 13,472 | 1 | – | – | – | – | – | – | – | 1 | – | – | – |
| 60 | Webster, | 13,453 | – | – | 1 | – | – | – | – | – | – | – | 5 | – |
| 61 | Adams, | 13,378 | – | – | – | – | – | – | – | – | – | – | – | – |
| 62 | Clinton, | 13,289 | – | – | – | – | – | – | – | – | 2 | – | – | – |
| 63 | West Springfield, | 13,119 | – | – | – | – | – | – | – | – | – | – | – | – |
| 64 | Danvers, | 12,663 | 4 | – | 4 | – | – | – | – | – | – | – | – | – |
| 65 | Dedham, | 12,524 | 1 | – | 8 | – | – | – | – | – | – | – | – | – |
| 66 | Natick, | 12,175 | – | – | – | – | – | – | – | – | – | – | – | – |
| 67 | Saugus, | 12,061 | – | – | 5 | – | – | – | – | – | – | – | 14 | – |
| 68 | Easthampton, | 10,956 | – | – | – | – | – | – | – | – | – | – | – | – |
| 69 | Athol, | 10,831 | – | – | – | – | – | – | – | – | – | – | 1 | – |
| 70 | Bridgewater, | 10,807 | – | – | – | – | – | – | 1 | – | – | – | – | – |
| 71 | Winchester, | 10,590 | 2 | – | – | – | – | – | – | – | – | – | – | – |
| 72 | Braintree, | 10,417 | – | – | – | – | – | – | 2 | – | – | – | – | – |
| 73 | Belmont, | 10,219 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 74 | Palmer, | 10,191 | – | – | – | – | – | – | – | – | – | – | – | – |
| 75 | TOWNS, 5,000–10,000. | *342,000* | *24* | – | *16* | *1* | *1* | – | *1* | – | *2* | *1* | *14* | – |
| 76 | TOWNS, 2,500–5,000. | *188,565* | *9* | – | *8* | *1* | – | – | – | – | *1* | – | *45* | – |
| 77 | TOWNS UNDER 2,500. | *211,893* | *12* | – | *9* | – | *1* | *1* | – | – | *1* | *1* | *47* | – |
| 78 | STATE INFIRMARY, | – | *3* | – | *4* | – | – | – | – | – | *1* | – | – | – |
| 79 | CAMP DEVENS, | – | – | – | – | – | *1* | – | – | – | *4* | – | – | – |

In addition to the above there occurred 5 cases of anterior poliomyelitis, 2 in Bridgewater, 1 in Lowell,
bite (requiring anti-rabic treatment), 1 in Beverly, 1 in Lowell and 4 in New Bedford; 3 cases of
Framingham, 1 in Middleborough, 7 in Milford and 2 in Northbridge; 9 cases of septic sore throat, 4 in
1 in Boston, 1 in Cambridge, 1 in Malden and 1 in Natick; 2 cases of smallpox in Quincy; 2 cases of
1 in Cambridge, 1 in Lowell, 1 in Peabody and 1 in Worcester; 1 death from trichinosis in Boston.

TO THE PUBLIC HEALTH — Concluded.

| 38A | | 38B | | 19C | | 7 | | 28–29 | | 30–35 | | 1 | | 38C | | 37 | | 8 | | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | Influenza. | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 52 |
| 1 | - | - | - | 4 | - | 3 | - | 2 | 2 | - | - | 1 | - | 1 | - | - | - | 1 | - | - | - | 53 |
| - | - | - | - | - | - | 3 | - | - | - | - | - | - | - | 1 | - | 4 | - | - | - | - | - | 54 |
| - | - | - | - | 1 | - | 2 | - | 1 | - | 1 | 1 | - | - | 2 | - | - | - | - | - | - | - | 55 |
| - | - | - | - | - | - | - | - | 3 | 3 | 1 | - | - | - | 5 | - | - | - | - | - | - | - | 56 |
| - | - | - | - | - | - | 6 | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | - | 57 |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 58 |
| 1 | - | - | - | - | - | 1 | - | 2 | - | - | - | - | - | 3 | - | 1 | - | - | - | - | - | 59 |
| - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | 2 | - | 1 | - | - | - | - | - | 60 |
| - | - | - | - | - | - | - | - | 4 | 1 | - | - | 1 | - | - | - | - | - | - | - | - | - | 61 |
| - | - | - | - | - | - | - | - | - | 3 | - | - | - | - | 7 | - | - | - | - | - | - | - | 62 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | 3 | - | - | - | - | - | 63 |
| - | - | - | - | 3 | - | - | - | 1 | 2 | - | 1 | - | - | 1 | - | - | - | - | - | - | - | 64 |
| - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | 2 | - | 3 | - | - | - | 65 |
| - | - | - | - | - | - | - | - | 3 | 1 | - | - | - | - | 1 | - | - | - | - | - | - | - | 66 |
| - | - | 2 | - | - | - | 3 | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 67 |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 68 |
| - | - | - | - | - | - | - | - | 1 | 1 | - | - | - | - | 2 | - | - | - | - | - | - | - | 69 |
| - | - | - | - | - | - | 1 | - | 2 | 1 | - | 1 | - | - | - | - | 5 | - | - | - | - | - | 70 |
| - | - | - | - | - | - | - | - | 3 | - | - | - | 1 | - | 2 | - | - | - | 5 | - | - | - | 71 |
| - | - | - | - | - | - | - | - | 1 | 2 | - | - | - | - | - | - | - | - | 5 | - | - | - | 72 |
| - | - | - | - | - | - | 1 | - | 1 | 1 | - | - | - | - | 1 | - | - | - | 1 | - | 1 | - | 73 |
| - | - | - | - | - | - | 3 | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | - | - | 74 |
| 2 | - | - | - | 8 | - | 8 | - | 23 | 17 | 9 | 5 | 2 | - | 28 | - | 9 | - | 28 | 2 | 1 | 1 | 75 |
| - | - | - | - | 9 | - | 16 | 1 | 19 | 16 | - | 1 | 2 | - | 19 | - | 5 | - | 8 | 1 | - | - | 76 |
| - | - | - | - | 17 | - | 12 | - | 4 | 23 | 1 | 3 | 4 | - | 18 | - | 2 | - | 29 | 1 | - | - | 77 |
| 1 | - | - | - | 1 | - | - | - | 12 | 10 | - | - | 1 | - | 2 | - | - | 1 | 1 | - | - | - | 78 |
| - | - | - | - | 1 | - | 1 | - | - | - | - | - | - | - | 51 | - | 18 | - | - | - | - | - | 79 |

1 in Scituate and 1 in West Newbury; 2 cases of anthrax, 1 in Lynn and 1 in Woburn; 6 cases of dog dysentery, 1 in Adams, 1 in Northampton and 1 in Salem; 20 cases of malaria, 1 in Camp Devens, 9 in Boston, 1 in Cambridge, 1 in Malden, 1 in Medford, 1 in Natick and 1 in Newburyport, with 4 deaths, tetanus, 1 in Fall River and 1 in Lynn, with 1 death in Worcester; 5 cases of trachoma, 1 in Boston,

## CASES AND DEATHS FROM DISEASES DANGEROUS

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 1 | Massachusetts, . . . . . | 3,991,969 | 94 | – | 324 | **20** | 15 | **13** | 11 | – | 72 | **50** | 131 | **6** |
| 2 | Cities over 200,000. | | | | | | | | | | | | | |
| 3 | Boston, . . . . . . | 808,442 | 28 | – | 103 | **4** | 3 | **1** | 2 | – | 33 | **17** | 24 | **1** |
| 4 | Cities, 150,000-200,000. | | | | | | | | | | | | | |
| 5 | Worcester, . . . . . . | 176,761 | 3 | – | 8 | – | – | – | – | – | 2 | – | 7 | **1** |
| 6 | Cities, 100,000-150,000. | *687,463* | *12* | – | *49* | *5* | *3* | *5* | – | – | *9* | *6* | *38* | *1* |
| 7 | Fall River, . . . . . . | 129,416 | 3 | – | 7 | **1** | 2 | **1** | – | – | 1 | **1** | 18 | **1** |
| 8 | New Bedford, . . . . . | 120,438 | – | – | 5 | – | – | **2** | – | – | – | **1** | 8 | – |
| 9 | Springfield, . . . . . . | 114,792 | 2 | – | 7 | **3** | – | – | – | – | 3 | **1** | 1 | – |
| 10 | Cambridge, . . . . . . | 112,176 | 4 | – | 14 | – | – | – | – | – | 2 | – | 6 | – |
| 11 | Lowell, . . . . . . . | 109,396 | 1 | – | 4 | **1** | 1 | **2** | – | – | 2 | **3** | 3 | – |
| 12 | Lynn, . . . . . . . | 101,245 | 2 | – | 12 | – | – | – | – | – | 1 | – | 2 | – |
| 13 | Cities, 50,000-100,000. | *478,422* | *15* | – | *33* | *3* | *4* | *4* | *2* | – | *10* | *8* | *24* | – |
| 14 | Somerville, . . . . . . | 94,950 | 3 | – | 9 | – | – | – | 1 | – | 2 | **4** | 1 | – |
| 15 | Lawrence, . . . . . . | 93,933 | 1 | – | 11 | **2** | 1 | **1** | – | – | 1 | **1** | 1 | – |
| 16 | Brockton, . . . . . . | 66,824 | 1 | – | 2 | – | – | – | 1 | – | – | – | 17 | – |
| 17 | Holyoke, . . . . . . | 63,413 | – | – | – | – | – | – | – | – | – | **1** | – | – |
| 18 | Haverhill, . . . . . . | 53,940 | 7 | – | 5 | – | – | – | – | – | 2 | – | 5 | – |
| 19 | Malden, . . . . . . | 52,669 | 2 | – | 4 | **1** | 2 | **2** | – | – | 3 | **1** | – | – |
| 20 | Chelsea, . . . . . . | 52,663 | 1 | – | 2 | – | 1 | **1** | – | – | 2 | **1** | – | – |
| 21 | Cities and Towns, 25,000-50,000. | *500,608* | *13* | – | *33* | *5* | – | – | *1* | – | *5* | *5* | *7* | – |
| 22 | Quincy, . . . . . . | 47,433 | 1 | – | 2 | **1** | – | – | – | – | – | – | – | – |
| 23 | Pittsfield, . . . . . . | 45,907 | 1 | – | 1 | – | – | – | – | – | 1 | **1** | – | – |
| 24 | Newton, . . . . . . | 45,895 | 5 | – | 3 | – | – | – | – | – | – | – | 2 | – |
| 25 | Salem, . . . . . . . | 42,292 | – | – | 7 | **2** | – | – | – | – | 1 | – | – | – |
| 26 | Everett, . . . . . . | 41,282 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 27 | Fitchburg, . . . . . . | 41,196 | 2 | – | 1 | – | – | – | – | – | – | – | – | – |
| 28 | Brookline, . . . . . . | 38,287 | – | – | – | – | – | – | 1 | – | 1 | – | – | – |
| 29 | Taunton, . . . . . . | 37,761 | 4 | – | 1 | **1** | – | – | – | – | – | **1** | 2 | – |
| 30 | Medford, . . . . . . | 36,702 | – | – | 2 | – | – | – | – | – | – | – | – | – |
| 31 | Chicopee, . . . . . . | 34,124 | – | – | 6 | **1** | – | – | – | – | 1 | **1** | – | – |
| 32 | Waltham, . . . . . . | 32,107 | – | – | 3 | – | – | – | – | – | – | **1** | 3 | – |
| 33 | Revere, . . . . . . | 31,035 | – | – | 5 | – | – | – | – | – | – | – | – | – |
| 34 | Beverly, . . . . . . | 26,587 | – | – | 1 | – | – | – | – | – | 1 | **1** | – | – |
| 35 | Cities and Towns, 10,000-25,000. | *597,915* | *12* | – | *43* | *2* | *3* | *2* | – | – | *8* | *6* | *12* | *1* |
| 36 | Gloucester, . . . . . . | 24,545 | – | – | – | – | – | – | – | – | – | – | – | – |
| 37 | Northampton, . . . . . | 23,526 | – | – | 2 | – | – | – | – | – | – | – | 1 | – |
| 38 | North Adams, . . . . . | 22,048 | – | – | – | – | – | – | – | – | 2 | **1** | 1 | **1** |
| 39 | Peabody, . . . . . . | 21,070 | – | – | – | – | – | – | – | – | – | – | – | – |
| 40 | Westfield, . . . . . . | 20,402 | – | – | 3 | **1** | – | – | – | – | – | – | – | – |
| 41 | Attleboro, . . . . . . | 20,386 | – | – | – | – | – | – | – | – | – | – | – | – |
| 42 | Watertown, . . . . . . | 19,579 | – | – | – | – | – | – | – | – | – | – | – | – |
| 43 | Framingham, . . . . . | 18,310 | 1 | – | – | – | – | – | – | – | – | – | – | – |
| 44 | Arlington, . . . . . . | 18,004 | – | – | 2 | – | – | – | – | – | – | – | – | – |
| 45 | Melrose, . . . . . . | 17,860 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 46 | Gardner, . . . . . . | 17,786 | – | – | – | – | – | – | – | – | – | – | – | – |
| 47 | Leominster, . . . . . . | 17,701 | – | – | 1 | – | 1 | **1** | – | – | – | – | 6 | – |
| 48 | Woburn, . . . . . . | 17,336 | – | – | – | – | – | – | – | – | – | – | – | – |
| 49 | Methuen, . . . . . . | 16,161 | – | – | 1 | – | 1 | – | – | – | – | – | – | – |
| 50 | Marlborough, . . . . . | 15,814 | 1 | – | – | – | – | – | – | – | – | – | 1 | – |
| 51 | Newburyport, . . . . . | 15,614 | – | – | 2 | **1** | 1 | **1** | – | – | – | – | – | – |

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[1] Deaths are available for publication each month through the courtesy of the Secretary of the Com-
and correction, these deaths, while approximately correct, are not absolutely complete.

## TO THE PUBLIC HEALTH,[1] AUGUST, 1919.

| 38A | | 38B | | 19C | | 7 | | 28-29 | | 30-35 | | 1 | | 38C | | 37 | | 8 | | 10 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ophthalmia Neonatorum. | | Suppurative Conjunctivitis. | | Mumps. | | Scarlet Fever. | | Tuberculosis, Pulmonary. | | Tuberculosis, Other Forms. | | Typhoid Fever. | | Gonorrhœa. | | Syphilis. | | Whooping Cough. | | Influenza.[1] | | |
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| 80 | – | 19 | – | 82 | – | 248 | 7 | 529 | 296 | 50 | 46 | 134 | 15 | 730 | – | 275 | 22 | 424 | 27 | 56 | 5 | 1 |
| | | | | | | | | | | | | | | | | | | | | | | 2 |
| 7 | – | 1 | – | 46 | – | 50 | 3 | 173 | 67 | 13 | 12 | 18 | 2 | 296 | – | 119 | 8 | 73 | 6 | 19 | 1 | 3 |
| | | | | | | | | | | | | | | | | | | | | | | 4 |
| 11 | – | 3 | – | – | – | 9 | – | 20 | 13 | – | 4 | 6 | 1 | 34 | – | 27 | 1 | 34 | 3 | 3 | – | 5 |
| *35* | – | *9* | – | *3* | – | *35* | – | *122* | *51* | *18* | *10* | *31* | *4* | *147* | – | *52* | *1* | *69* | *3* | *9* | *1* | 6 |
| 8 | – | 1 | – | – | – | 1 | – | 25 | 15 | 5 | 1 | 5 | – | 15 | – | 7 | – | 18 | – | 1 | – | 7 |
| 9 | – | 4 | – | 1 | – | – | – | 23 | 7 | 6 | 4 | 1 | – | 22 | – | 8 | – | 5 | 2 | 3 | – | 8 |
| 3 | – | – | – | – | – | 6 | – | 11 | 6 | 1 | – | 6 | 2 | 40 | – | 18 | – | 4 | – | 1 | – | 9 |
| 3 | – | 3 | – | 1 | – | 12 | – | 15 | 7 | 1 | 2 | 2 | – | 16 | – | 11 | – | 32 | – | 1 | – | 10 |
| 9 | – | 1 | – | 1 | – | 5 | – | 31 | 10 | 5 | 3 | 13 | 2 | 28 | – | 6 | – | 2 | – | 2 | – | 11 |
| 3 | – | – | – | – | – | 11 | – | 17 | 6 | – | – | 4 | – | 26 | – | 2 | 1 | 8 | 1 | 1 | 1 | 12 |
| *12* | – | *2* | – | *6* | – | *49* | *1* | *63* | *27* | *4* | *5* | *21* | *1* | *75* | – | *23* | *4* | *54* | *5* | *12* | *1* | 13 |
| 2 | – | 1 | – | – | – | 5 | – | 8 | 8 | 1 | 1 | 2 | – | 4 | – | 2 | – | 6 | 1 | 2 | – | 14 |
| 3 | – | – | – | 1 | – | 11 | 1 | 16 | 10 | – | 1 | 1 | – | 12 | – | 3 | – | 5 | – | – | – | 15 |
| 1 | – | – | – | 2 | – | 6 | – | 7 | 2 | – | 1 | – | – | 6 | – | 4 | 2 | 9 | – | – | – | 16 |
| – | – | – | – | – | – | 12 | – | 2 | 3 | – | – | – | – | 3 | – | 3 | 1 | 7 | 3 | – | – | 17 |
| 2 | – | – | – | – | – | 1 | – | 10 | 1 | – | – | 5 | – | 34 | – | 9 | – | 23 | 1 | 6 | 1 | 18 |
| – | – | – | – | 2 | – | 11 | – | 12 | 1 | – | 1 | 10 | – | 5 | – | – | – | 4 | – | 3 | – | 19 |
| 4 | – | 1 | – | 1 | – | 3 | – | 8 | 2 | 3 | 1 | 3 | 1 | 11 | – | 2 | 1 | – | – | 1 | - | 20 |
| *6* | – | – | – | *1* | – | *42* | *2* | *32* | *31* | *4* | *1* | *19* | *2* | *44* | – | *15* | *3* | *63* | *7* | *3* | – | 21 |
| – | – | – | – | – | – | 15 | - | 3 | 4 | 1 | - | 2 | - | 4 | – | 2 | – | 4 | – | – | – | 22 |
| – | – | – | – | – | – | 5 | – | 4 | 2 | – | – | 3 | – | 8 | – | – | – | 29 | 3 | 1 | – | 23 |
| 1 | – | – | – | – | – | – | – | 3 | 2 | – | – | – | 1 | 4 | – | – | – | 14 | – | – | – | 24 |
| – | – | – | – | – | – | 4 | 2 | 3 | 2 | – | – | 1 | – | 2 | – | 2 | – | 2 | 1 | – | – | 25 |
| – | – | – | – | 1 | – | 2 | – | 2 | 1 | – | – | 3 | 1 | 2 | – | 2 | – | 2 | 1 | 2 | – | 26 |
| – | – | – | – | – | – | – | – | 5 | 3 | 1 | – | – | – | 4 | – | 2 | – | – | – | – | – | 27 |
| – | – | – | – | – | – | 3 | – | – | 2 | – | 1 | – | – | 1 | – | – | – | 2 | – | – | – | 28 |
| 1 | – | – | – | – | – | 2 | – | 4 | 6 | – | – | 1 | – | 8 | – | 3 | 3 | 2 | 1 | – | – | 29 |
| 1 | – | – | – | – | – | 4 | – | 2 | 1 | – | – | 6 | – | 1 | – | 1 | – | 5 | 1 | – | – | 30 |
| – | – | – | – | – | – | – | – | 3 | 3 | – | – | – | – | 4 | – | – | – | – | – | – | – | 31 |
| 1 | – | – | – | – | – | 4 | – | – | 2 | 1 | – | 2 | – | 1 | – | – | – | 3 | – | – | – | 32 |
| – | – | – | – | – | – | 1 | – | – | 1 | – | – | 1 | – | 4 | – | 2 | – | – | – | – | – | 33 |
| 2 | – | – | – | – | – | 2 | – | 3 | 2 | 1 | – | – | – | 1 | – | 1 | – | – | – | – | – | 34 |
| *5* | – | *3* | – | *9* | – | *34* | *1* | *64* | *40* | *5* | *5* | *25* | *2* | *59* | – | *18* | *2* | *58* | – | *1* | *1* | 35 |
| – | – | – | – | – | – | 8 | 1 | 5 | 1 | – | 1 | – | – | 3 | – | – | – | – | – | – | – | 36 |
| – | – | – | – | – | – | 3 | – | – | 3 | – | 1 | 1 | – | 5 | – | 1 | 2 | – | – | – | – | 37 |
| – | – | – | – | – | – | – | – | 4 | 2 | 2 | – | 2 | 1 | 2 | – | – | – | 8 | – | – | – | 38 |
| – | – | – | – | – | – | – | – | 4 | 1 | – | – | – | – | 2 | – | – | – | – | – | – | – | 39 |
| – | – | – | – | – | – | 7 | – | – | – | – | – | – | – | 2 | – | – | – | – | – | – | 1 | 40 |
| – | – | – | – | – | – | – | – | – | – | – | – | 1 | – | 2 | – | 1 | – | – | – | – | – | 41 |
| – | – | 1 | – | 1 | – | – | – | 2 | 3 | – | – | – | – | 2 | – | 1 | – | – | – | 1 | – | 42 |
| – | – | – | – | 1 | – | 4 | – | 4 | 4 | – | – | – | – | 1 | – | – | – | 7 | – | – | – | 43 |
| – | – | – | – | – | – | – | – | 5 | – | – | – | – | – | 1 | – | – | – | – | – | – | – | 44 |
| 4 | – | – | – | 2 | – | – | – | 1 | 1 | 1 | – | – | – | 1 | – | – | – | 10 | – | – | – | 45 |
| – | – | – | – | – | – | – | – | 3 | 1 | – | – | 8 | – | – | – | – | – | – | – | – | – | 46 |
| – | – | – | – | – | – | 1 | – | 2 | – | – | – | – | – | 4 | – | – | – | - | – | – | – | 47 |
| – | – | – | – | 1 | – | – | – | 3 | – | – | – | – | – | 3 | – | – | – | 6 | – | – | – | 48 |
| – | – | – | – | 1 | – | – | – | 1 | – | – | – | – | – | – | – | – | – | – | – | – | – | 49 |
| – | – | – | – | – | – | – | – | – | – | – | – | 1 | – | – | – | – | – | 6 | – | – | – | 50 |
| – | – | 1 | – | – | – | – | – | – | – | – | – | 8 | 1 | 3 | – | – | – | 4 | – | – | – | 51 |

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monwealth. Owing to the delay by physicians in returning death certificates sent them for addition

## Cases and Deaths from Diseases Dangerous

| Line No. | Cities and Towns grouped in Order of Population. | Population estimated as of July 1, 1919. | 19A Chicken Pox. | | 9 Diphtheria. | | 61A Ep. Cerebrospinal Meningitis. | | 19B German Measles. | | 92 Lobar Pneumonia. | | 6 Measles. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. |
| 52 | Southbridge, | 15,580 | – | – | – | – | – | – | – | – | – | – | – | – |
| 53 | Winthrop, | 14,968 | 3 | – | – | – | – | – | – | – | – | – | – | – |
| 54 | Weymouth, | 14,874 | – | – | 2 | – | – | – | – | – | 2 | – | – | – |
| 55 | Greenfield, | 14,466 | – | – | 3 | – | – | – | – | – | – | – | – | – |
| 56 | Milford, | 14,214 | – | – | 6 | – | – | – | – | – | – | – | – | – |
| 57 | Wakefield, | 13,939 | – | – | – | – | – | – | – | – | – | – | – | – |
| 58 | Plymouth, | 13,587 | – | – | 1 | – | – | – | – | – | – | 1 | – | – |
| 59 | Norwood, | 13,472 | – | – | – | – | – | – | – | – | – | – | – | – |
| 60 | Webster, | 13,453 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 61 | Adams, | 13,378 | – | – | 1 | – | – | – | – | – | 2 | 1 | 1 | – |
| 62 | Clinton, | 13,289 | – | – | – | – | – | – | – | – | – | – | – | – |
| 63 | West Springfield, | 13,119 | – | – | 1 | – | – | – | – | – | – | – | – | – |
| 64 | Danvers, | 12,663 | 3 | – | 2 | – | – | – | – | – | – | 1 | – | – |
| 65 | Dedham, | 12,524 | – | – | 2 | – | – | – | – | – | – | – | – | – |
| 66 | Natick, | 12,175 | 1 | – | 1 | – | – | – | – | – | 2 | – | – | – |
| 67 | Saugus, | 12,061 | – | – | 4 | – | – | – | – | – | – | – | – | – |
| 68 | Easthampton, | 10,956 | 1 | – | 2 | – | – | – | – | – | – | – | – | – |
| 69 | Athol, | 10,831 | – | – | – | – | – | – | – | – | – | – | 1 | – |
| 70 | Bridgewater, | 10,807 | – | – | 2 | – | – | – | – | – | – | – | – | – |
| 71 | Winchester, | 10,590 | – | – | 1 | – | – | – | – | – | – | 1 | – | – |
| 72 | Braintree, | 10,417 | – | – | – | – | – | – | – | – | – | 1 | – | – |
| 73 | Belmont, | 10,219 | – | – | 1 | – | – | – | – | – | – | – | 1 | – |
| 74 | Palmer, | 10,191 | 2 | – | 1 | – | – | – | – | – | – | – | – | – |
| 75 | Towns, 5,000-10,000. | *342,000* | *4* | – | *25* | *1* | *2* | *1* | *4* | – | *3* | *3* | *6* | – |
| 76 | Towns, 2,500-5,000. | *188,565* | *1* | – | *19* | – | – | – | *2* | – | – | *2* | *7* | *3* |
| 77 | Towns under 2,500. | – | *3* | – | *11* | – | – | – | – | – | – | *2* | *6* | – |
| 78 | State Infirmary, | – | *3* | – | – | – | – | – | – | – | *1* | *1* | – | – |
| 79 | Camp Devens, | – | – | – | – | – | – | – | – | – | *1* | – | – | – |

In addition to the above there occurred 12 cases of anterior poliomyelitis, 3 in Boston, 1 in Carlisle, Swampscott, with 2 deaths, 1 in Holyoke and 1 in Lowell; 2 cases of dog bite, 1 in Lowell and 1 in 1 in Newburyport; 19 cases of malaria, 1 in Boston, 1 in Brockton, 1 in Camp Devens, 1 in Fall River, 1 in Danvers, 1 in Northampton, 1 in Westborough, with 1 death in Medford; 16 cases of septic sore Newburyport, with 4 deaths, 1 in Boston, 1 in Framingham, 1 in Milford and 1 in Pittsfield; 3 cases of 4 cases of trachoma, 2 in Boston, 1 in Haverhill and 1 in Malden.

TO THE PUBLIC HEALTH — Concluded.

| 38A Ophthalmia Neonatorum. | | 38B Suppurative Conjunctivitis. | | 19C Mumps. | | 7 Scarlet Fever. | | 28-29 Tuberculosis, Pulmonary. | | 30-35 Tuberculosis, Other Forms. | | 1 Typhoid Fever. | | 38C Gonorrhœa. | | 37 Syphilis. | | 8 Whooping Cough. | | 10 Influenza. | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Cases. | Deaths. | Line No. |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 2 | - | - | - | - | - | - | - | 52 |
| - | - | - | - | 2 | - | - | - | 1 | 3 | - | - | - | - | - | - | - | - | 2 | - | - | - | 53 |
| - | - | - | - | - | - | 1 | - | 2 | - | - | - | - | - | 2 | - | 1 | - | - | - | - | - | 54 |
| - | - | - | - | - | - | 1 | - | - | 1 | - | - | - | - | 2 | - | 1 | - | - | - | - | - | 55 |
| - | - | - | - | - | - | - | - | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 56 |
| - | - | - | - | - | - | - | - | - | 1 | - | 2 | - | - | 1 | - | - | - | - | - | - | - | 57 |
| - | - | - | - | - | - | - | - | 1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 58 |
| - | - | - | - | - | - | 2 | - | 4 | 2 | - | - | - | - | 5 | - | - | - | 3 | - | - | - | 59 |
| - | - | 1 | - | - | - | - | - | 1 | 2 | - | - | - | - | - | - | - | - | 2 | - | - | - | 60 |
| 1 | - | - | - | - | - | - | - | 2 | - | - | - | 4 | - | 2 | - | - | - | 4 | - | - | - | 61 |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | 3 | - | - | - | 62 |
| - | - | - | - | - | - | 1 | - | - | 2 | - | - | - | - | 2 | - | 1 | - | - | - | - | - | 63 |
| - | - | - | - | - | - | 1 | - | 4 | 1 | 1 | - | - | - | 1 | - | 8 | - | - | - | - | - | 64 |
| - | - | - | - | - | - | - | - | 3 | 1 | - | - | - | - | - | - | 1 | - | 3 | - | - | - | 65 |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 66 |
| - | - | - | - | - | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 67 |
| - | - | - | - | - | - | 3 | - | 2 | - | - | - | - | - | 1 | - | - | - | - | - | - | - | 68 |
| - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 3 | - | - | - | - | - | - | - | 69 |
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1 in Easthampton, 1 in Holliston, 1 in Holyoke, 2 in Lowell, 1 in Lynn, 1 in New Bedford and 1 in Winthrop; 3 cases of dysentery, 1 in Cambridge and 2 in Newburyport, with 2 deaths, 1 in Boston and 2 in Framingham, 1 in Lawrence and 12 in Milford, with 1 death in Northampton; 3 cases of pellagra, throat, 3 in Boston, 6 in Cambridge, 1 in Fall River, 1 in Lowell, 1 in Medford, 1 in Natick and 3 in tetanus, 1 in Concord, 1 in Lynn and 1 in Worcester, with 2 deaths, 1 in Amesbury and 1 in Boston;

# MASSACHUSETTS STATE DEPARTMENT OF HEALTH.

Commissioner of Health, EUGENE R. KELLEY, M.D.

## Public Health Council.

EUGENE R. KELLEY, M.D., *Chairman.*

| | |
|---|---|
| WM. T. SEDGWICK, Ph.D. | JOSEPH E. LAMOUREUX, M.D. |
| GEORGE C. WHIPPLE, S.B. | WM. J. GALLIVAN, M.D. |
| DAVID L. EDSALL, M.D. | WARREN C. JEWETT. |

| | |
|---|---|
| Division of Administration, | —— —— |
| Division of Sanitary Engineering, | Director and Chief Engineer, X. H. GOODNOUGH, C.E. |
| Division of Communicable Diseases, | Director, BERNARD W. CAREY, M.D. |
| Division of Water and Sewage Laboratories, | Director and Chemist, H. W. CLARK. |
| Division of Biologic Laboratories, | Director and Pathologist, MILTON J. ROSENAU, M.D. |
| Division of Food and Drugs, | Director and Analyst, HERMANN C. LYTHGOE, S.B. |
| Division of Hygiene, | Director, MERRILL E. CHAMPION, M.D. |

## State District Health Officers.

| | |
|---|---|
| The Southeastern District, | CHARLES W. MILLIKEN, M.D., Barnstable. |
| The Eastern District, | GEORGE T. O'DONNELL, M.D., Boston. |
| The Northeastern District, | LYMAN A. JONES, M.D., Swampscott. |
| The North Midland District, | CHARLES E. SIMPSON, M.D., Lowell. |
| The South Midland District, | ARTHUR A. BROWN, M.D., Worcester. |
| The Wachusett District, | FRANCIS A. FINNEGAN, M.D., Fitchburg. |
| The Connecticut Valley District, | —— —— |
| The Berkshire District, | JAMES A. KEENAN, M.D., Pittsfield.[1] |

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[1] Acting.

# THE COMMONHEALTH

VOL. 6, NO. 6 NOV.-DEC., 1919

## SPECIAL NUMBER

### Fiftieth Anniversary of the Founding of the State Board of Health of Massachusetts

MASSACHUSETTS
DEPARTMENT OF PUBLIC HEALTH

EUGENE R. KELLEY, M.D., COMMISSIONER

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Publication of this Document
approved by the
Supervisor of Administration.

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# THE COMMONHEALTH.

Sent free to any citizen of the State.

MERRILL E. CHAMPION, M.D., Director of Division of Hygiene, Editor,
Room 546, State House, Boston.

This issue of The Commonhealth is devoted to a brief summary of the work of the State Health Department of Massachusetts since its establishment in 1869 as the first State board of health in the country. It was planned to hold exercises at the State House Sept. 15, 1919, to commemorate this event. The uncertain state of affairs in Boston owing to the police strike rendered this inadvisable. We are publishing in this issue, however, the papers prepared for this occasion by Sir Arthur Newsholme and Dr. Allan J. McLaughlin.

# HISTORY OF THE STATE BOARD OF HEALTH TO 1914 AND THE STATE DEPARTMENT OF HEALTH TO 1919.

Fifty years ago there was founded in Massachusetts a State Board of Health, the first in the country in point of time. This was twenty years after Lemuel Shattuck and his associates had made to the Legislature their farseeing report, in which the need of a State Board of Health was pointed out. It is interesting to note, furthermore, that this same report anticipated by many years some of our more cherished modern ideas of hygiene. In the introduction to this report we find these admirable words, which might with profit be brought yearly to the attention of city and town governments: —

> We believe that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable; that the average length of human life may be very much extended, and its physical power greatly augmented; that in every year, within this Commonwealth, thousands of lives are lost which might have been saved; that tens of thousands of cases of sickness occur which might have been prevented; that a vast amount of unnecessarily impaired health and physical debility exists among those not actually confined by sickness; that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities, pecuniary, social, physical, mental and moral, which might be avoided; that means exist within our reach for their mitigation or removal; and that measures for prevention will effect infinitely more than remedies for the cure of disease.

As means toward the attainment of the ends referred to in the preamble of the report, the Shattuck committee recommended the establishment of a central board of health, charged with the general execution of the health laws of the State; the establishment of local boards of health; a census of the people; systematic registration of births, marriages and deaths; investigations into the causation of disease; abatement of the smoke nuisance; public health education; and other far-reaching measures.

When the State Board of Health of Massachusetts finally began its work in 1869, it did so under a charter of the broadest possible scope. Its duties were defined by the Legislature in these words: —

> The Board shall take cognizance of the interests of the life and health of the citizens in this Commonwealth. They shall make sanitary investigations and inquiries in respect to the causes of disease, and especially of epidemics and the sources of mortality, and the effects of localities, employments, conditions and circumstances upon the public health; and they shall gather such information in respect to those matters as they may deem proper for diffusion among the people. They shall advise the government in regard to the location and other sanitary conditions of any public institutions, and shall report to the Legislature each year with such suggestions as to legislative acts as they may deem necessary.

The new Board of Health, established under such favorable conditions, realized fully the broad responsibilities which awaited it. Said Dr. Henry I. Bowditch, the first chairman of the Board, in his address to the members at their first meeting: —

> As the subject-matters for our discussion may be somewhat indefinite in all of our minds, I take the liberty of addressing a few words to you, in order that you may know not only what I consider the general nature of our duties, but may also understand how high I place these duties when I consider them in their relations to the present and future health of the citizens of the State. I may be mistaken in my estimate of the importance of the movement, the commencement of which to-day devolves upon us. I confess to you that I know of no higher office in the State than that which we now hold, viz., that of inaugurating the idea of "State medicine" in Massachusetts. Upon our high or low appreciation of the position and of the duties resulting from that position, and upon our wise or foolish performance of these duties, depends the success of the object aimed at in the establishment of a State Board of Health. The last Legislature, unconsciously, perhaps, on the part of many members thereof, has proposed a system that may be made by us capable of good to the citizens in all future time, or it may prove a perfect abortion. Our work is for the far future as well as for the present, and at this very opening of our labors we should try to place ourselves above the region of merely local or temporary excitement or partisan warfare, in order that we may act wisely and for the ultimate good of the whole people.

This same sense of responsibility has been uppermost throughout the entire fifty years' history of the Board.

Before giving a more detailed account of the special activities of the Board, a word as to its administrative history is in order. For ten years subsequent to the founding of the Board in 1869 it maintained an independent existence. In 1879 a merger was accomplished whereby three departments — those of health, lunacy and charity — became one Board. In 1886, however, the Board of Health resumed its separate identity by act of Legislature. No further change occurred until 1914, when the Board became a Department, with a

Commissioner in charge, aided by an advisory Public Health Council. It s of the greatest interest to note that one man, Dr. Henry P. Walcott, served continuously from 1880 to 1914, first as health officer, then Board member, and from 1886 as chairman of the Board. In 1914, after the reorganization of the Board, Dr. Allan J. McLaughlin of the United States Public Health Service became the first Commissioner of Health. He was succeeded in 1918 by Dr. Eugene R. Kelley, the present Commissioner of Health.

A more detailed account of the different activities, both past and present, of the State Department of Health follows, chiefly in the words of those at present in charge of the respective divisions of the work.

## Division of Engineering.

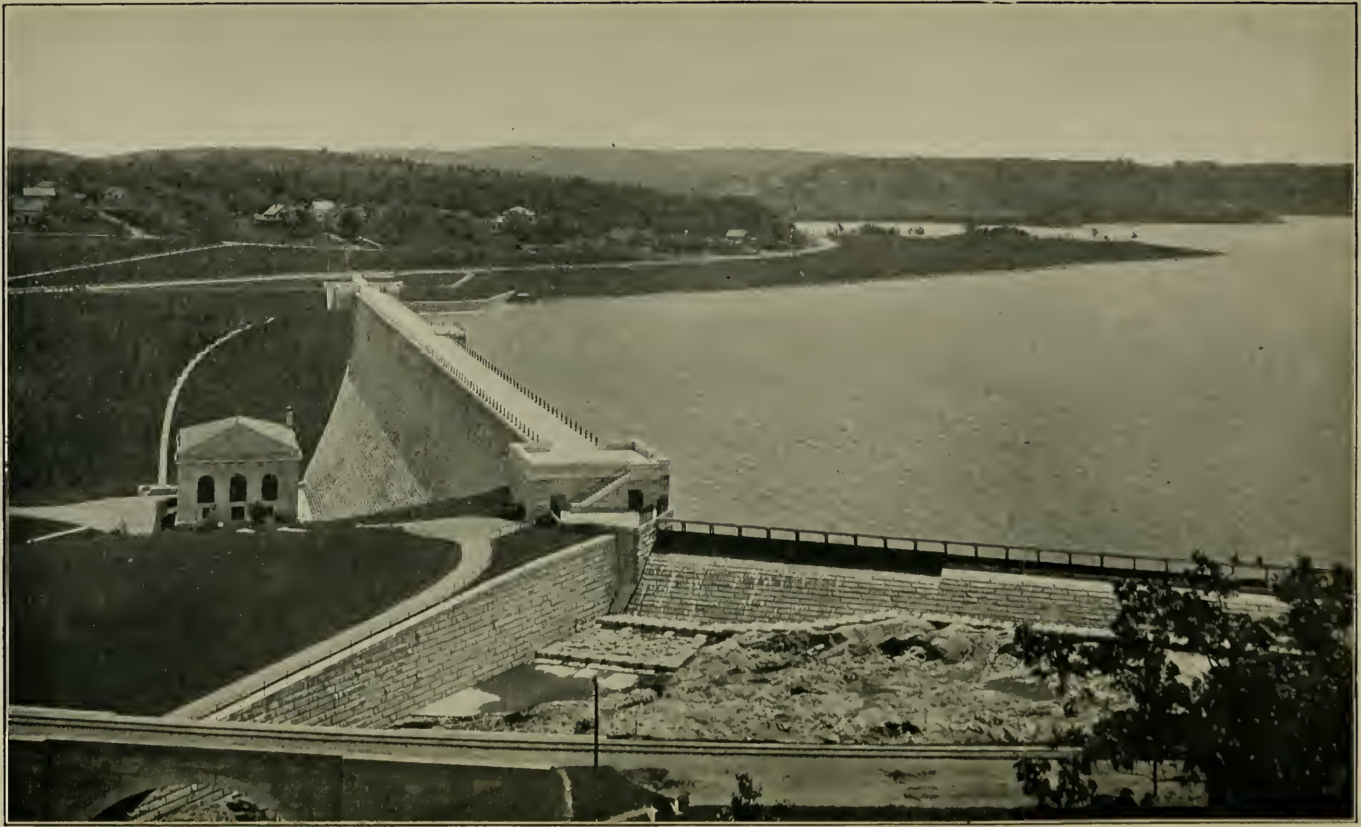
X. H. Goodnough, C.E., Director.

With the establishment of the Board in 1869, prominent among the questions presented for its consideration were problems relating to water supply, drainage and sewerage, and in 1872 by legislative resolve, the Board was "requested to consider the general subject of the disposition of the sewage of towns and cities, having in view, first, its utilization as a fertilizer; second, sanitary effects of draining the same into the waters of the Commonwealth; third, the increasing joint use of the water courses for sewers and as sources of supply for domestic use by the people of the Commonwealth." The report upon these questions was published in the fourth annual report of the Board, and during the following years up to the time of its union with the Boards of Lunacy and Charity detailed reports were made concerning water supplies, and especially the condition of the various rivers of the State. In carrying out this work the Board employed engineers and chemists, and the work was continued in a similar way during the period when the Board formed a part of the Board of Health, Lunacy and Charity up to the time of the re-establishment of the State Board of Health in 1886.

In the meantime the Massachusetts Drainage Commission, so called, was appointed under a resolve of the Legislature in May, 1884, directing the commission to consider and report upon a general system of drainage for the relief of the valleys of the Mystic, Blackstone and Charles rivers, and for the protection of the public water supplies of the cities and towns situated within the basins of said rivers. This commission was also directed to consider various methods for the disposal of sewage and the application of such methods on any portion of the territory mentioned in the resolve. The report of that commission was published in 1886, and in its conclusions appear the following recommendations, which served as the basis of subsequent legislation giving the Board certain general duties and powers relating to the inland waters of the State, including all questions of water supply, drainage and sewerage: —

> Precisely the same principle which enjoins a watchful care over the exterior waters of the State would seem to call for at least an equal solicitude concerning the abuse of its interior waters. But mindful of the tenderness with which Massachusetts has always treated her industrial classes, we think it would be wise to embrace in the enactment one peculiarly characteristic feature borrowed from the act establishing a railroad commission, and which has proved strong enough to enforce amply all the rights of the public in that class of highways called railroads. This distinctive trait is the use of advisory as distinguished from mandatory power. We think it would be well, then, for the Legislature to designate some one or more persons to look after the public interests in this direction. Let these guardians of inland waters be charged to acquaint themselves with the actual condition of all waters within the State as respects their pollution or purity, and to inform themselves particularly as to the relation which that condition bears to the health and well-being of any part of the people of the Commonwealth. Let them do away, as far as possible, with all remediable pollution, and use every means in their power to prevent further vitiation. Let them make it their business to advise and assist cities or towns desiring a supply of water or a system of sewerage. They shall put themselves at the disposal of manufactories and others using rivers, streams or ponds, or in any way misusing them, to suggest the best means of minimizing the amount of dirt in their effluent, and to experiment upon methods of reducing or avoiding pollution. They shall warn the persistent violator of all reasonable regulation in the management of water of the consequences of his acts. In a word, it shall be their especial function to guard the public interest and the public health in its relation with water, whether pure or defiled, with the ultimate hope, which must never be abandoned, that sooner or later ways may be found to redeem and preserve all the waters of the State. We propose to clothe the Board with no other power than the power to examine, advise and report, except in cases of violation of the statutes. If such a Board be able to commend itself by its conduct to the approval of the great court of public opinion, it will have no difficulty, we think, in materially reducing the disorders and abuses which are threatening to give great trouble in future if not speedily checked. If, however, we err in this expectation, and more drastic measures prove indispensable, the mandate of the State can always be invoked to re-enforce its advice.

With the reorganization of the Board in 1886 these recommendations were enacted into legislation, and the whole matter placed in the hands of the new Board. For carrying out this work the Board



Metropolitan Water Works. — Wachusett Dam and Power House.

created a permanent engineering organization supplemented with chemical laboratories to furnish information and carry on experiments necessary to advise cities and towns and others as to all questions relating to water supply, drainage and sewerage. The effect of this act and of subsequent amendments was to require that all plans relating to the construction, maintenance and extension of systems of water supply, drainage and sewerage should be submitted to the Department for its recommendation and advice thereon, and to provide that there should be a general oversight of all the inland waters of the Commonwealth to determine whether their condition was such or liable to become such as to be injurious to the interests of the persons lawfully using them, or imperil the public health.

In 1914 the State Board of Health was reorganized and the name changed to the State Department of Health. This reorganization effected no material change in the engineering or chemical organizations employed in the water supply and sewerage division, but lost to the State the services of the chairman, Dr. Henry P. Walcott, and of Hiram F. Mills, A.M., C.E., who had been active members of the Board since the reorganization in 1886, and who had rendered inestimable service in the organization of the Department and in so directing its activities that its work should be of the highest value to the Commonwealth in all matters committed to its charge.

Since 1914 the Department has carried on this work on similar lines, but amid great difficulties since the beginning of the war, owing to the loss of nearly all of the members of its engineering staff, most of whom entered the service of the army and navy soon after the war began.

In the foregoing, mention has only been made of the general work of the Engineering Division of the Department of Health in connection with questions relating to water supply, drainage and sewerage. In addition to this work numerous special problems have been committed to the Department for its consideration, many of them involving extensive engineering investigations.

## METROPOLITAN SEWERAGE SYSTEM.

By chapter 95 of the Resolves of 1887, and chapter 63 of the Resolves of 1888, the Board was directed to investigate and report a plan for a metropolitan system of sewerage chiefly in the Mystic and Charles River valleys. The territory whose relief was provided for under these resolves included an area of 130 square miles and contained 20 municipalities having a population aggregating about one-sixth of the total population of the State at that time.

The Board, as a result of its studies, recommended systems of sewerage for the Mystic and Charles River valleys and the various towns therein, as required by the acts, and recommended further that the sewage be discharged into the sea through an outlet located near Deer Island Light off the northerly entrance to Boston Harbor. The plan was adopted by the Legislature, and a special commission, known as the Metropolitan Sewerage Commission, was appointed to construct the works in accordance with the plans designed by the Board. The works were completed at a total cost of approximately $5,500,000, and have been in use continuously since 1894.

## METROPOLITAN WATER SUPPLY.

By the provisions of chapter 459 of the Acts of the year 1893, entitled "An Act relative to procuring a water supply for the city of Boston and its suburbs," the Board was directed to prepare a plan for providing a water supply for the population within a radius of 10 miles from the State House in the city of Boston. The Board under this act presented to the Legislature in 1895 a report recommending the construction of a great reservoir on the South Branch of the Nashua River, a stream draining the region about Mount Wachusett in the hilly country in the north central part of the State. The plans included the continued use of certain portions of the former water supply system of the city of Boston and other communities, and the connection of the new system with the various parts of the metropolitan district by suitable reservoirs, aqueducts, pipe lines and other works. The plans of the Board were accepted by the Legislature of 1895, and the construction of the works in accordance with these plans was committed to a special commission, — the Metropolitan Water Board. The construction of the works was at once begun, and the great reservoir known as the Wachusett Reservoir, having a capacity of 65,000,000,000 gallons, was filled to overflowing for the first time in the spring of 1908.

The total cost of the works, including amounts paid for existing works in other cities and towns, utilized in connection with the metropolitan system, has been (up to 1918) about $43,000,000.

## RECLAMATION AND UTILIZATION OF WET LANDS AND THE RECOVERY OF DEPOSITS, ETC.

By the provisions of chapter 759 of the Acts of 1913 the State Boards of Agriculture and Health were authorized, with the approval of the Governor and Council, to take by eminent domain any

Metropolitan Water Works. — Wachusett Basin.

tract or tracts of wet lands for the purposes of reclamation, cultivation, etc. Various tracts were investigated and much information collected relative to certain of these tracts, but the funds appropriated by this act were subsequently transferred to the State Forester, to be used for the employment of the unemployed. Under chapter 212 of the General Acts of 1917 the State Board of Agriculture and the State Department of Health, acting jointly, were authorized to investigate the utilizing of wet lands, etc., and a report with recommendations was made to the Legislature of 1918 which resulted in the passage of chapter 289 of the General Acts of 1918 establishing a Drainage Board. A second report was made to the Legislature of 1919 by the Joint Board in which additional studies of various wet lands and the utilization of peat were presented, and in which it was recommended that the further work of the Joint Board be transferred to the Drainage Board. The report resulted in legislation to this effect. As in the case of other public works all construction work with few exceptions was postponed during the war, but schemes for reclamation are now being taken up.

## EXTENSION OF METROPOLITAN SEWERAGE DISTRICTS.

Under the authority of chapter 83 of the Resolves of 1913 the State Board of Health was directed to examine the general subject of the disposal of sewage in the South Metropolitan Sewerage District, and to see if an extension of the district was desirable. The recommendations of the Board were presented to the Legislature of 1914, and resulted in the extension of the district to include the towns of Needham and Wellesley. Under the authority of chapter 116 of the Resolves of 1914 the Metropolitan Water and Sewerage Board and the State Board of Health, acting jointly, were directed to investigate the expediency of adding the town of Reading to the North Metropolitan Sewerage District. The recommendations were presented to the Legislature of 1914, and resulted in the extension of the North Metropolitan Sewerage District to include the town of Reading.

## DISCHARGE OF SEWAGE INTO BOSTON HARBOR AND REMOVAL OF MERCHANTABLE PRODUCTS FROM THE SEWAGE.

Under authority of chapter 56 of the Resolves of 1917 the chairman of the Metropolitan Water and Sewerage Board, the Commissioner of Health and the Commissioner of Public Works of the city of Boston, acting jointly, were authorized and directed to investigate the matter of the pollution of Boston Harbor by sewage, and to determine whether there was any practical, economical way of removing from the sewage any merchantable products contained therein. The recommendations of the Joint Board were reported to the Legislature of 1918.

### INVESTIGATION OF THE POLLUTION OF CERTAIN RIVERS.

By the provisions of chapters 9, 15 and 29 of the Resolves of the year 1919 the State Department of Health is authorized and directed to investigate, respectively, the condition of the Charles, the Blackstone and the Taunton rivers.

### WATER SUPPLY NEEDS AND RESOURCES, AND USE OF GREAT PONDS.

Under the provisions of chapter 49 of the Resolves of the year 1919 the State Department of Health and the Metropolitan Water and Sewerage Board, acting jointly, were directed to investigate the water supply needs and resources of the Commonwealth, and to consider whether any great ponds now used for water supply might better be devoted to the purpose of public recreation. This work, which it was estimated would require two years for completion, has already been begun under an appropriation provided for the purpose.

## Division of Water and Sewage Laboratories.

H. W. CLARK, DIRECTOR.

At the beginning of the work, in 1885, of the Department of Water Supply and Sewerage of the State Board of Health, laboratories for the examination of water and sewage were established at the Massachusetts Institute of Technology, and in 1887 an experiment station for investigations in regard to the purification of sewage, trades waste, the treatment and filtration of water, and allied subjects, was established at Lawrence.

In the laboratories at the Institute of Technology samples of water from the water supplies of the State, the rivers, etc., and of the sewage entering these rivers, and effluents of sewage filters were examined both chemically and microscopically, and the Lawrence Station was equipped with tanks, filters, etc., and chemical and bacteriological laboratories for the proper study of the subjects to be investigated.

In 1896 the Institute laboratories for the examination of water and sewage were removed to the State House, and have been continued there.

The experiment station has been enlarged and improved from time to time, and although always modest in equipment, the investigations and studies carried on there have added greatly to the knowledge of the world in regard to the proper treatment and purification of water, sewage, etc. The work has been continued thirty-two years up to the present time, and from the first has been of such character that it is known in all countries interested in sanitary science.

Beginning with studies on intermittent sand filtration of sewage and water, together with laboratory investigations upon nitrification, the cause of the reduction of bacteria by filtration, etc., the work of the station has grown constantly, and has included experimental investigations, tending always towards the development of scientific and practical methods of sewage purification, the purification of manufacturing wastes of many kinds, the filtration or other treatment of water, and other special investigations in sanitary science, which have been described in many papers written by the experiment station staff.

The first report of the work of the station, published in 1890, was for many years the best known work on sewage disposal. In this report the results of studies of intermittent filtration of sewage in those early years were fully described, and many of the laws of filtration made clear. It was clearly shown by experiments that filters of gravel stone gave the best illustration of the essential character of intermittent filtration of sewage. Filters were constructed of stones so large that even the coarser suspended particles of the sewage were not removed, yet "the slow movement of the sewage in thin films over the surface of the stone with air in contact caused a removal for some months of 97 per cent of the organic nitrogenous matter, as well as 99 per cent of the bacteria." Special investigations upon the filtration of water, made during those early years, were also of great interest, and showed at what rates polluted water could be purified by slow sand filtration using the sands common in New England, and also showed the laws governing such filtration. The first result of this work upon filtration of water was the construction of the municipal filter for the city of Lawrence, the first large filter constructed in America, and which up to the present time has undoubtedly saved thousands of lives in that city. The construction of this filter, according to the designs and under the direction of this Department, started the movement throughout the country towards the purification of public water supplies by filtration.

Reviews of the work of this division have been given in different reports, and it is impossible in this space to give even the principal subjects studied. It might be mentioned, however, that in sewage purification the first two-story tank for the treatment of sludge was put into operation at the experiment station in 1899, and was practically the same as the so-called Imhoff tank, now one of the principal features at many large purification works in this and other countries. The purification of sewage by the means of aëration and growths had its inception also at Lawrence in 1912, and now known as the activated sludge process, is being installed at many municipalities, especially abroad.

At the present time the principal sewage studies at the station are in regard to the improvements of the process just mentioned; upon the value of sewage sludge, and methods for its collection; in regard to the improvement of the efficiency of trickling filters, and upon what might be called concentrated methods of sewage purification.

In the treatment of water much work is being done upon methods for the removal of color, which, while efficient, will not increase the corrosive properties of water so treated; and recent investigations have been made in regard to the treatment of water by liquid chlorine and ultraviolet rays.

All the bacterial work of the Department in regard to the water supplies of the State, rivers of the State, and the condition of shell fish from the different areas from which they are collected, is also carried on at this station.

The laboratories first established at the Institute of Technology, and for the past twenty-three years in the State House, are engaged, as previously stated, in examining chemically and microscopically the waters of the State of all kinds. This work has directly to do with all engineering investigations of the State of whatever kind, and furnishes many of the data necessary in making satisfactory replies to the several hundred applications made to the Department each year for advice in regard to quality of water, improvement of water supplies, treatment and disposal of sewage and trades waste, etc. In these laboratories up to the present time nearly 150,000 chemical analyses have been made. Much field work has been carried on here in the direct examination of rivers, water supplies, the waste from factories and the condition of sewage areas.

## Division of Communicable Diseases.

B. W. Carey, M.D., Director.

The duties now performed by the Division of Communicable Diseases were largely cared for, prior to the reorganization of 1914, by the secretary of the Board, with the assistance of the State Inspectors of Health.

These inspectors, at first sixteen in number, were appointed in 1907, and devoted only part of their time to the public health work. Their duties varied widely, from the inspection of factories, now delegated to the State Board of Labor and Industries, to the ever-changing problems of the local board of health.

The work done in factory inspection, the examination of minors employed in industry, and the many special investigations were of a pioneer nature, and have resulted in better working conditions for the employee and a marked reduction of production loss for the employer. This work has been in a large measure successfully carried on and enlarged upon, until to-day no large industrial plant is without its nurse, physician and welfare department, with ample safety devices to prevent accident.

In 1912 the districts of the State were changed, and the number of officers reduced to twelve. In 1914 a further change in districts and reduction of men to eight was made. The men were placed upon a full-time basis, and are required by statute to devote all of their time to public health work.

When the plan of reorganization was effected a separate division was created, to be known as the Communicable Disease Division, charged with the specific function of reducing the incidence of communicable disease.

Efforts have been persistently directed against tuberculosis, typhoid, pneumonia, diphtheria, venereal diseases, measles, scarlet fever and whooping cough, and appreciable results have been obtained.

The division's organization consists of a director, epidemiologist and clerical force, a subdivision of venereal diseases with a chief and staff, a diagnostic laboratory, and a field force of eight District Health Officers and eight nursing assistants.

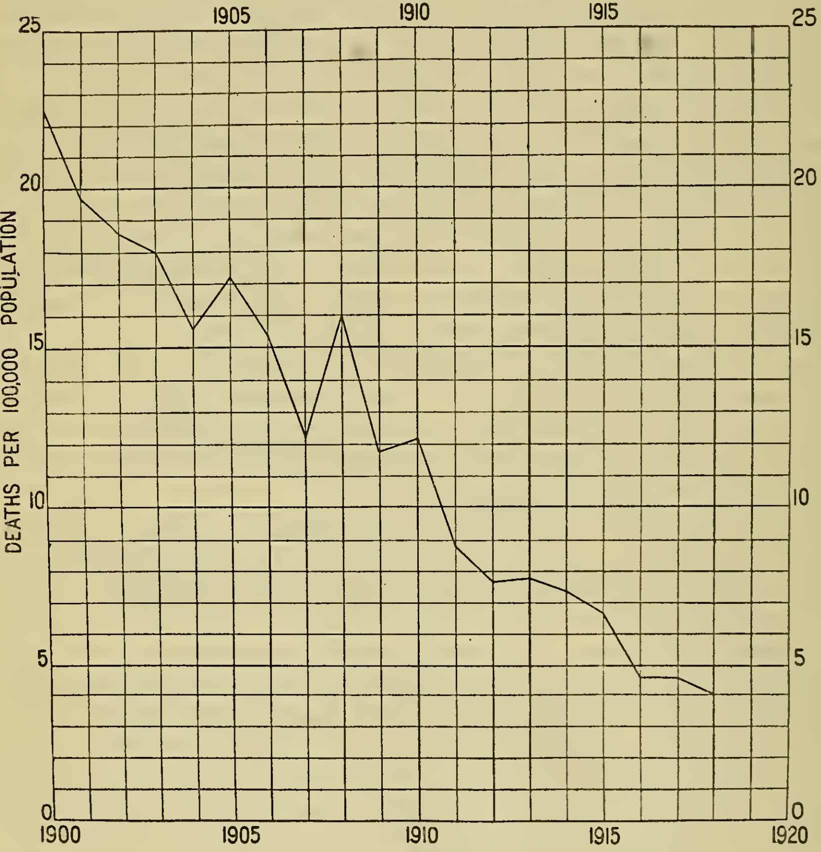
The epidemiologist is especially watchful of reportable diseases, and where undue prevalence is noted, either calls attention to its existence by sending an outbreak notice to the District Health Officer, or, if at the moment the District Health Officer is not available, investigates the condition with the local board of health.

Special investigations of a scientific nature are also carried out by the epidemiologist with the assistance of the field force, and statistical studies made of all data.

The policy of aiding the local authorities in their investigation of local undue prevalence has been most fruitful, and we now find even the smaller boards investigating most of their outbreaks on their own initiative with scientific accuracy.

TYPHOID FEVER

MASSACHUSETTS DEATH RATE



Surveys of cities and towns are made whenever such service is asked for or when the need arises.

The work of the District Health Officers and their nursing assistants has been of tremendous importance and value to the State, for, acting as the general representatives for the State Department of Health in their respective districts, they have well fulfilled their duties, which vary from giving advice to the local boards of health to expert consultation work with the physician. There is hardly a public health movement in a given district inaugurated without the advice and counsel of the District Health Officer.

The District Health Officer, by advice and assistance to the local board of health, is bringing epidemiological investigations to a point of efficiency where the possibility of large outbreaks undetected are reduced to the minimum. By these investigations we are likewise able to place each causative factor of communicable disease in its proper place as regards its importance, and to expend our efforts in the most effective channels. The time has arrived when multiple infection in the same family is no longer looked upon as unavoidable, and the needed steps for the prevention of such occurrences are known.

With the increased interest and activity, the division has planned and put into operation campaigns for special work in the prevention and control of diphtheria, pneumonia, syphilis and gonorrhœa, and has continued its work in tuberculosis with success.

The advancement made in caring for venereal diseases has been marked, and we not only provide for the diagnosis of gonorrhœa and syphilis, but, through distribution of arsphenamine and the subsidized clinics, offer free treatment to our people. Much educational work has been done for the prevention of venereal diseases through lectures, motion-pictures, slides and the distribution of pamphlets. Physicians, dentists, druggists and manufacturing concerns of the State have been circularized with good results. The attendance at the State-approved clinics has increased, and many clinics are employing a social service worker to follow up the patient who shows a tendency to lapse treatment, and to bring under treatment other members of the patient's family who may be infected.

The diagnostic laboratory has greatly increased the scope of its work and the number of examinations made, and is to-day offering services of the highest scientific value to the physicians of the Commonwealth.

It is here that the early diagnosis of some of the communicable diseases is made possible, and, working in conjunction with the biological laboratory, diagnosis and treatment is provided. We are offering real preventives against communicable disease, typhoid, paratyphoid, diphtheria and smallpox, and trust that soon a pneumonia vaccine will be available which will be of proven efficacy.

## Division of Food and Drugs.

HERMANN C. LYTHGOE, S.B., DIRECTOR.

### INSPECTION OF FOODS AND DRUGS PREVIOUS TO 1914.

The first food and drug law in Massachusetts (which was the second oldest food law in the country) was passed in 1882, and has since been amended at various times. Its enforcement has always been in the hands of the State Board of Health. Numerous investigations conducted by the Board no doubt influenced the passage of the law.

Under the law of 1882 two analysts, one for food and one for drugs, were appointed to collect and examine samples. So deplorable was the state of affairs, as revealed by the first year's investigations, that two additional analysts were appointed, and two-fifths of the $5,000 appropriation was to be expended for the enforcement of the milk law. Appropriations have increased each year up to the present.

After the reorganization of the State Board of Health, the Food and Drug Division was created, Hermann C. Lythgoe being made the director of the division. The division consolidated the Food and Drug Laboratory, the Food and Drug Inspectors and the Departments of Dairy, Cold Storage and Slaughtering Inspection, which, prior to this time, had been run as separate institutions. These various entities, after about three years, have been remodeled into an efficient inspection force.

The division enforces the general and special food and drug laws; it enforces the milk laws relating to adulteration; it enforces the State cold-storage law, and a portion of the laws relating to slaughtering. In the enforcement of the milk, food and drug laws, the inspectors of the Department collect samples or purchase samples, as the case may be, and deliver these samples to the chemists of the division. The samples are then analyzed by the chemists, and, if the samples prove to be adulterated, the director passes upon the disposition of the case.

In doing this work about 10,000 samples per annum are examined, most of these samples being milk samples. The reason for the large collection of milk samples is obvious when one considers that milk is the most important article of food, and the article of food which is most liable to adulteration.

About 300 cases per annum are prosecuted, and the fines imposed vary from $4,000 to $8,000. These fines, it should be understood, do not revert to the Department, but are paid into the treasury of the city or town where the offence is committed. In recent years the number of prosecutions for the sale of decomposed foodstuffs has been on the increase. This is not because of any increased sale of decomposed food, but because of the research work done by the Department and others in detecting such decomposed foods by chemical methods.

The character of the samples collected has changed from year to year. In 1898, for example, 67 per cent of the food samples examined consisted of condensed milk, coffee, cream of tartar, cocoa, chocolate, honey, molasses and spices, which articles were extensively subjected to adulteration. In 1905 the character of these foods was improved to such an extent that but 30 per cent of the samples collected were of this class, and during the past few years conditions have improved to such an extent that about 3 per cent of the samples examined are of this class. In other words, foods of this nature upon the market are practically free from adulteration. During 1917, 27 per cent of the total food samples examined were tested for the presence of decomposition products, while in 1898 and 1905 practically no work of this sort was done. Examples of recent investigations relative to the use of decomposed foodstuffs may be cited by reference to our work in curtailing the use of decomposed meat and sausages; in curtailing the sale of decomposed eggs; and in examining foodstuffs in our cold-storage warehouses to see whether or not they were fit for food when placed in storage. The inspectors of the Department have the power to confiscate the decomposed foodstuffs without an order from the court. This power is used whenever necessary, and generally the owner of the articles in question is willing to give his consent to their destruction. In cases where the owner does not care to give consent to the confiscation of these goods they are usually held in storage, and at the close of the court case the goods are confiscated.

During the past few years a number of careful investigations have been made relative to the egg supply of the Commonwealth. The laws governing traffic of this sort were not sufficiently explicit to control all cases, and therefore the false advertising law was used with success to stop the sale of old eggs under the name of "fresh eggs." There seems to be a slight hesitancy on the part of the fresh retail dealer to sell eggs for what they really are. He prefers to sell eggs as "fresh eggs," irrespective of the age of the egg. This practice is being fairly well broken up, but considerable more work must be done before dealers are aware of their liability to prosecution if they persist in violating the law about honest advertising.

In the enforcement of the cold-storage laws the Department looks after the sanitary condition of all the cold-storage warehouses, licenses the warehouses, and inspects the food in the warehouses. No article of food can remain in storage for more than twelve months without the consent of the Department. The percentage of goods stored more than twelve months is less than one-fourth of 1 per cent of the total goods placed in storage.

In the enforcement of the slaughtering laws the division looks over the qualifications of the nominees made by the local boards of health for the position of inspector of slaughtering, and recommends to the Commissioner that the nominees be approved or disapproved, as the case may be. The inspectors of the Department then look over the slaughterhouses of the State, see that the inspectors perform their duties as prescribed by statute, and also act as instructors to these local inspectors whenever occasion demands.

The Board, on March 1, 1905, began a systematic investigation of dairies and conditions under which milk for the public was produced. The examination embraced an inquiry into the health and cleanliness of cows, conditions of stables, methods of handling and transportation, water, and other matters germane to the subject. The conditions revealed were deplorable. The following table shows the number of dairies inspected in 1905 and 1911, and improvements as to number showing objectionable features: —

| YEAR. | Total Number of Dairies visited. | Number showing Objectionable Features. | Number showing No Objectionable Features. |
|---|---|---|---|
| 1905, . . . . . . . . . . | 2,151 | 1,720 | 431 |
| 1911, . . . . . . . . . . | 2,067 | 736 | 1,331 |

This work, however, was discontinued in 1914 primarily by the outbreak of the hoof and mouth disease. After the hoof and mouth disease was over it was decided to cease making any more dairy inspections except upon request of the local authorities. The reason for this action was due to the passage of a law making it necessary for local boards of health to do this work, and the Department did not consider it advisable to duplicate work of local boards of health.

In 1916 the division undertook an investigation to manufacture salvarsan, the war having practically exhausted this country's supply of that necessary drug. The studies of the division finally resulted in the establishment of a small factory for the manufacture of this article, which is now being carried out. This article so manufactured is named arsphenamine. There have been 18,000 doses of this product made by the division and distributed by the Department throughout the State, and these have been administered without any bad results.

### The Division of Biologic Laboratories.

M. J. Rosenau, M.D., Director.
A. N. Allen, M.D., Assistant Director, W. A. Hinton, M.D., Assistant Director.

The establishment of a laboratory for the production and free distribution of diphtheria antitoxin was brought about through the foresight of Dr. H. P. Walcott in 1894. This was a new departure, and the results have fully justified its wisdom.

Dr. J. L. Goodale started the preparation of antitoxic serum in a laboratory in the State House. The horses were kept in a stable on the grounds of the Bussey Institution of Harvard University, near the Forest Hills station. Some serum was distributed as early as the spring of 1895. At that time Dr. Theobald Smith fitted up a number of laboratory rooms in the Bussey Institution and took charge of the work. He continued in charge until Aug. 1, 1914. With the increasing demand for serum, culminating with the epidemic of 1900–01, the quarters in the Bussey Institution became more and more inadequate. Furthermore, the desirability became more and more evident that the Commonwealth should also prepare and distribute vaccine virus freely to rich and poor alike. The Legislature, during the session of 1903, passed a bill which authorized the State Board of Health to procure and distribute vaccine lymph. The corporation of Harvard University used a portion of the land of the Bussey Institution, adjoining the Arnold Arboretum, and built a laboratory for the preparation of diphtheria antitoxin and vaccine virus. The building was ready for occupation in July, 1904. Meanwhile, the production of antitoxin continued without interruption in the old laboratory. The preparation of vaccine virus was begun in July, 1904, and late in September the first lot was issued. Since then the production of diphtheria antitoxin and vaccine virus has been continued without interruption to supply the needs of the Commonwealth.

On Aug. 1, 1914, Dr. Theobald Smith resigned his position as director of the Antitoxin and Vaccine Laboratory, and his place was temporarily filled by Dr. Herbert R. Brown. Meanwhile, the State Board of Health was superseded by the State Department of Health (Aug. 6, 1914), and the Antitoxin and Vaccine Laboratory was made part of the Division of Biologic Laboratories, with Dr. M. J. Rosenau as director of the division.

The Division of Biologic Laboratories comprises the following two laboratories: (1) the Antitoxin and Vaccine Laboratory at Forest Hills, and (2) the Wassermann Laboratory at 240 Longwood Avenue, Boston.

### ANTITOXIN AND VACCINE LABORATORY.

Dr. Theobald Smith built and organized this laboratory, as briefly sketched above. Upon his resignation it passed to the directorship of Dr. M. J. Rosenau. From Aug. 1, 1914, until Aug. 1, 1916, Dr. Herbert R. Brown was assistant director, in immediate charge; he was succeeded by Dr. Rudolph Kohn, who resigned in July, 1918; and he in turn was succeeded by Dr. A. N. Allen, who now holds the position. The following products are made and distributed in this laboratory: diphtheria antitoxin, vaccine virus, and, since 1917, antimeningitis serum, anti-pneumococcic serum, types I and II, bacterial vaccines for typhoid and paratyphoid fevers, toxin-antitoxin mixture for active immunity in diphtheria, and diphtheria toxin solution for the Schick test.

In addition to the routine distribution of biologic products this laboratory has made several noteworthy contributions towards improving the methods of producing specific products, and the scientific principles underlying the immunity to infectious diseases.

### WASSERMANN LABORATORY.

The Wassermann Laboratory was established June 1, 1915, with a personnel of four workers; it now employs nine workers.

From June 1, 1915, to Aug. 1, 1919, it has tested 108,798 specimens by the Wassermann reaction, and has grown from the rate of 13,000 specimens per year during the first six months to over 30,000 specimens per year at present.

The following table shows the growth of this service: —

| | 1915 (Six Months). | 1915–16 (Twelve Months). | 1916–17 (Twelve Months). | 1917–18 (Twelve Months). |
|---|---|---|---|---|
| Institutions, . . . . . . . | 6,350 | 23,101 | 24,735 | 23,008 |
| Physicians, . . . . . . . | 142 | 2,396 | 3,789 | 4,526 |
| Total, . . . . . . . . | 6,492 | 25,497 | 28,524 | 27,534 |

During the first year its activities were confined to Wassermann tests only. In May, 1916, it took over the diagnostic work for the

Department of Animal Industry, and has tested 4,057 specimens. These tests consist chiefly of the examination for rabies and glanders. However, a very important part of the work for the above department consists in bacteriologic and pathologic examinations of obscure and epidemic diseases among domestic animals in the Commonwealth.

In addition to these activities the laboratory has spent considerable time on an experimental study of the complement fixation test for tuberculosis. It has also made an experimental study of the gonococcus test, and has added this test to its list of routine examinations.

Apart from the actual work which it has performed, the most important activity of the laboratory has been its accomplishment of a standardized method of performing the Wassermann reaction. Most of the large laboratories throughout the State are using the method employed in this laboratory.

During the war the laboratory placed its facilities at the disposal of the government, in consequence of which 3,627 specimens were tested for the various military organizations. These included Wassermann tests and complement fixation tests for glanders. It was also a place for the instruction of a number of military men who were to undertake Wassermann and other serologic tests in their government work.

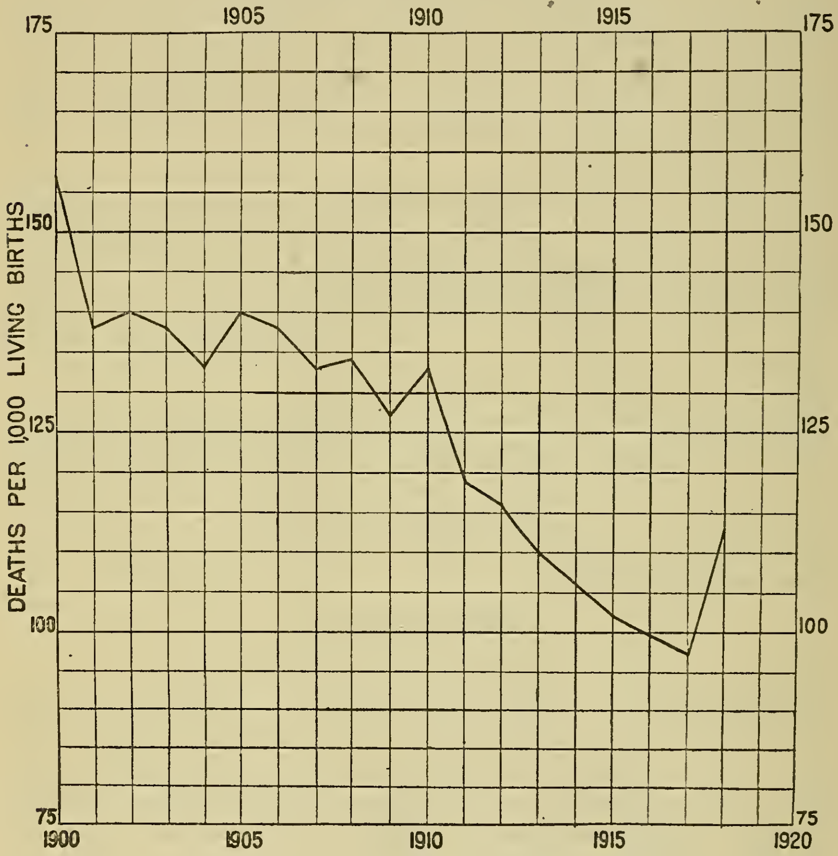
In summarizing the history and activities of these laboratories, attention is invited to the fact that the Division of Biologic Laboratories concerns itself with the diagnosis, treatment and suppression of some of the most important communicable diseases that prevail, — namely, smallpox, diphtheria, syphilis, gonorrhœa, tuberculosis, pneumonia and meningitis.

## Division of Hygiene.

MERRILL E. CHAMPION, M.D., C.P.H., DIRECTOR.

Massachusetts has made special efforts to promote child conservation since early in 1915, shortly after the reorganization of the State Board of Health. Before that time the work was, to a certain extent, incidental. In the spring of 1915 the State Commissioner of Health created in the Department a Division of Hygiene. He made it clear at that time that the chief activities of the new division should be in the direction of reducing the infant mortality and promoting child hygiene. This effort was to be carried on not only through the essential activities of the division itself, but also through co-operative effort with other divisions such as that of Communicable Disease.

This work has been carried on in the following manner. A public health nurse was appointed as a health instructor to travel throughout the State, arranging health weeks and stimulating interest in the local communities on the subject of child conservation. Other nurses were soon added. A traveling child welfare exhibit was prepared, dealing with various phases of child hygiene. This was in charge of a nurse who gave practical demonstrations on washing


INFANT MORTALITY
MASSACHUSETTS RATE

and dressing a baby properly. The exhibit also included a milk sterilizing outfit for the home, an inexpensive home-made ice box, etc. Stereopticon slides were obtained, and practically the entire official personnel of the Department was impressed into the work of giving lectures. Certain moving-picture films dealing with health subjects were purchased and sent about the State. Various educational pamphlets were prepared and distributed free throughout the State. Later an automobile truck was added for use in transporting the exhibit to fairs and to the various cities and towns holding health weeks. A tent is used at the agricultural fairs in which is housed the traveling child welfare exhibit, including that of food and its relationship to health. An innovation this year was the temporary employment, for the period of the fairs, of a physician skilled in pediatrics, to weigh and measure children and give them a physical examination, if the parents so requested. No attempt at treatment was made; cases needing treatment were referred to their family physicians. Two dental hygienists were also present at the fairs to advise parents and children as to dental hygiene.

A further step in the work was the preparation of a series of nine prenatal letters which are sent to expectant mothers at their request, or at the suggestion of any interested friend or clinic. A good many physicians avail themselves of these letters. There is now available also a series of twelve postnatal letters, one for each month until the child is one year old. It is felt that with nine prenatal letters and twelve postnatal letters the mother can be well grounded in the simple essentials of child conservation, and at the same time will learn that the State Department of Health is ready and willing at all times to help her in her problems.

During the past year the Department has felt the demand for further teaching, and has produced, in co-operation with the State Board of Education, a child welfare outline intended for the use of teachers in the vocational schools, or, for that matter, in any schools. These courses are given to young women and young mothers. Instruction in the best way to conduct such a course was given at the State House by members of this Department and the State Board of Education. An additional piece of co-operation with the State Board of Education has been a summer course for nurses at one of the State normal schools, for the purpose of instructing nurses how to teach classes in home nursing and general hygiene.

During the war the Commissioner of Health, anxious to set in motion intensive effort directed toward child conservation, inaugurated a unique experiment. A child conservation committee was formed, made up partly of members of the Department, and partly of interested men and women from the outside who were specialists in their line. This committee included pediatricians and obstetricians, a nurse and others representing special phases of child conservation work. The Women's Council of National Defense co-operated in this new undertaking, and a representative from that organization was placed upon the child conservation committee. This committee, in order to have a little more freedom of action, determined to employ a group of nurses who were to be paid with money from outside the Department funds. The Boston Metropolitan Chapter of the Red Cross was induced to guarantee $10,000 for the salaries of eight nurses, the expenses of these nurses to be paid by the State Department of Health. These public health nurses were assigned one to each of the existing health districts of the State. This work was largely one of surveys of the different cities and towns to determine what facilities existed for the conservation of child life, and to enable the child conservation committee to determine what advice, if any, should be given as to future activities in these municipalities. It is well worth recording that this intensive work called for co-operation on the part of many and varied agencies. The group mainly relied upon, so far as the local communities were concerned, was the child conservation committees established in the majority of communities at the instance of the Women's Council of National Defense. These, however, represented only one group. In many instances successful co-operation was secured with local health departments, with visiting nursing associations, women's clubs, parent-teachers' associations, and various other organizations interested in civic welfare.

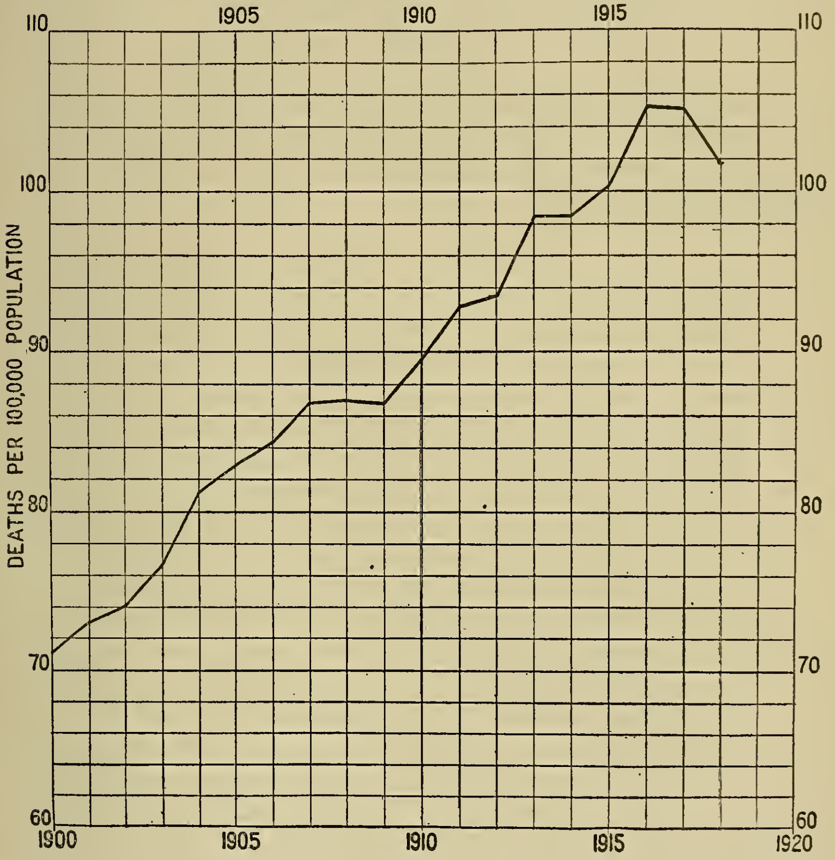
In estimating the results obtained these factors must be borne in mind. The children's year gave a tremendous impetus to work already started, and served as a stimulus to work entirely new. One factor in the results obtained was the weighing and measuring campaign inaugurated at Washington and carried out in Massachusetts through the Women's Council of National Defense and the local child conservation committees. The results, so far as statistics are concerned, were not perhaps so valuable. The real worth of the campaign lay in the publicity given to child welfare problems, and in the interest stirred up among parents on the subject of the health of their own children.

## PRESENT AND FUTURE ACTIVITIES.

The present organization of the Division consists of a Director, with a clerical force, a subdivision of public health nursing, including a chief and four nurse health instructors, a health instructor on foods, a supervisor of mouth hygiene, and a health instructor in charge of exhibits in the field and of drafting.

The work of the Division of Hygiene will logically develop along lines already suggested. Its chief function being education, and its major activity that of child conservation, it will be necessary to reach the people through the extension of the printed word, of exhibits and of lectures.

Clinics for children, purely advisory in character, to which people can bring apparently healthy children for examination and advice,



CANCER

MASSACHUSETTS DEATH RATE

seem to be the next concrete step, especially in the rural parts of the State.

Further recognition must be given the overwhelming importance of food and its relationship to health. To this end the division must endeavor to co-ordinate the private agencies already existing, and to stimulate the foundation of new ones.

The subject of mouth hygiene, which has already been recognized as of great hygienic importance, must be given further attention.

The extension of public health nursing to every community in the State is, without question, of the most vital interest to the Division of Hygiene, as it is to the Department as a whole. In this work the close co-operation of the Red Cross has been promised and is being given.

The formation of health centers, which are in the last analysis simply places where people may come to learn how to keep well, will prove to be the best agency through which the Division of Hygiene can get to the public its message of personal hygiene. As these centers develop they will be able to offer to every one the periodic examinations which are vitally important if we are to make any headway in preventing the so-called wear and tear diseases, and, to a certain extent, cancer.

# PUBLIC HEALTH PROGRESS IN ENGLAND DURING THE LAST FIFTY YEARS.

By Arthur Newsholme, K.C.B., M.D.

Having been engaged for thirty-five years in active public health work in England, and during eleven of those years having been the principal officer of its central public health department on its medical side, I may be assumed to possess some qualification for the task apportioned to me of reviewing the past half century's progress in public health in old England, this review being intended to run parallel with a corresponding review of the course of public health in New England, by your veteran and pioneer hygienist, Dr. Walcott.

I find it, however, beyond my power to compass within the space allotted me a résumé of my subject which shall be complete, or completely in perspective, or which shall not omit features on which, had time permitted, one would have wished to comment, and I must ask you to remember that only a portion — and that chiefly non-administrative — of the history of this wonderful half century can be embraced within my remarks. The survey should, I think, take a panoramic view of the story as it has developed: should note the changes as they have occurred, the obstacles which impeded reforms as well as the reforms secured; and should also, at least incidentally, state — in the light of unfailing historical guidance, as well as of increasing knowledge — the pressing desiderata for more efficient and more rapid future progress. I cannot hope to accomplish this task except to a fragmentary extent, but I am happy to remember that sanitary history in Old and in New England has proceeded largely on parallel lines. The closeness of the parallelism of the public history of England and Massachusetts is shown by the curves of annual death rates from all causes, from typhoid fever, from tuberculosis and the mortality of infants.

The work of the last fifty years was built on the pioneer work of men in Old and in New England, and for a complete understanding of this work, a momentary glance is required at the men of this earlier generation and their work.

In the old country we speak with reverence of the names of Southwood, Smith, Kay, Chadwick, Farr and Simon; and you remember with gratitude the names of Lemuel Shattuck, of Bowditch, of Walcott, S. W. Abbott, and Theobald Smith. And it is gratifying to remember that the epoch-making report of the Massachusetts Sanitary Commission of 1849–50, — to which were attached the ever-memorable names of Shattuck, N. P. Banks and Jehiel Abbott, — among its many statesmanlike and farseeing proposals, recommended a sanitary survey of the State, and referred to the recent English sanitary surveys, with which British sanitation may be said to have begun.

Let me in passing comment on the fact that neither Lemuel Shattuck in Boston nor Edwin Chadwick in London was a physician; but a perusal of their writings shows that they were men of sound judgment, of earnest zeal for their fellow men, with a wide and statesmanlike outlook, ready to search out, to accept and to apply the medical knowledge on which necessarily the prevention of disease is based. They illustrate once for all the need for partnership between all well-wishers of humanity in this work, and the importance of combined effort by the sociologist and the physician, as well as of experts in each branch of sanitation, if all attainable success is to be attained.

The tradition then established has never been lost. In England, more perhaps than in America, the control of public health work has been shared by intelligent laymen on local and central authorities, and the fact that medical officers of health have needed to convince these lay representatives of the general public of the need for the reforms recommended has meant steady progress, seldom interrupted by relapses; though delays and disappointments have beset the path of the earnest reformer, who might well wish that his lay colleagues had been trained in schools in which natural science formed a more open avenue to distinction than classics, or that the representatives on local authorities might more fully and more quickly appreciate in Simon's words, what they are "sometimes a little apt to forget that, for sanitary purposes, they are also the appointed guardians of human beings whose lives are at stake in the business."

What were the ideals with which the fathers of sanitation in New and in Old England began their work?

They cannot be better expressed than in their own words. In the 1850 report of the Massachusetts Sanitary Commission they are thus expressed: —

We believe that the conditions of perfect health, either public or personal, are seldom or never attained, though attainable; that the average length of human life may be very much extended, and its physical power greatly augmented; that in every year, within this Commonwealth, thousands of lives are lost which might have been saved; that tens of thousands of cases of sickness occur which might have been prevented; that a vast amount of unnecessarily impaired health and physical debility exists among those not actually confined by sickness; that these preventable evils require an enormous expenditure and loss of money, and impose upon the people unnumbered and immeasurable calamities, pecuniary, social, physical, mental, and moral, which might be avoided; that means exist, within our reach, for their mitigation or removal; and that measures for prevention will effect infinitely more than remedies for the cure of disease.

In a succeeding paragraph the Commissioners proceed to quote with approval the following remarks made by Mr. (afterwards Sir John) Simon in the preceding year, when he was medical officer of health to the city of London, and before he became the medical officer and adviser of the British government in health matters, and in that capacity laid the foundation and built much of the edifice of our present public health organization.

Ignorant men may sneer at the pretensions of sanitary science; weak and timorous men may hestitate to commit themselves to its principles, so large is their affiiction; selfish men may shrink from the labour of change, which its recognition must entail; and wicked men may turn indifferently from considering that which concerns the health and happiness of millions of their fellow-creatures; but in the great objects which it proposes to itself, in the immense amelioration which it proffers to the physical, social, and, indirectly, to the moral conditions of an immense majority of our fellow-creatures, it transcends the importance of all other sciences; and, in its beneficent operation, seems to embody the spirit, and to fulfil the intentions, of practical Christianity.

With such noble ideals, what measures of success crowned their efforts and those of their successors?

The earlier history I can only briefly mention, as we are chiefly concerned to-day with events since 1869. To understand these events, however, one must understand the forces which had been accumulating and increasing in power in earlier years, and which rendered possible the rapid public health progress experienced in the fourth quarter of the nineteenth and the first quarter — so far as it has passed — of the twentieth century.

Historians in future generations will refer to the second half of the eighteenth and the first half of the nineteenth century as the period of unmitigated industrialism; of associated rapid increase of urban at the expense of rural life; and of the most extreme manifestation of *laissez faire* economic science. The older semi-paternal system of interference with the economic life of the people by King and Parliament was replaced, under the influence of Adam Smith, Malthus, John Stuart Mill, and other teachers, by inaction, based on the view that in old countries poverty is the natural and inevitable result of pressure of population on means of subsistence, and that any interference with freedom of competition in obtaining work or employing workers is useless or mischievous. The same view found expression in President Jefferson's dictum: "That government is best which governs least," and until the middle of the nineteenth century these views were generally accepted and their influence was dominant.[1]

It was assumed that given free competition, enlightened self-interest would incite effort and improvement, encourage self-reliance, and guarantee production and economy.

Under the conditions considered inevitable with such teaching, although great wealth accompanied the rapid industrial development after the Napoleonic wars, it was associated with unrelieved misery; for home-workers and rural workers were crowded into towns in mean hovels, exposed to the evils resulting from overcrowding, from absence of adequate and satisfactory water supply, scavenging or drainage, paying exorbitant rents out of a miserable pittance of wages. By the year 1851 about half the population of England and Wales had become aggregated in towns, and it may be added that in 1911 less than one-fourth of the population was left in rural districts. Urbanization in the earlier years meant dense overcrowding and insanitation; and that it is still an influence adverse to health may be gathered from the information given by the census of 1911, that over eight times as large a proportion of the urban as of the rural population live in one-roomed tenements, and nearly twice as large a proportion live in two-roomed tenements, while the proportion of one-roomed tenements in towns which are overcrowded (in the sense of having more than two persons to a room) is seven times as great, and of two-roomed tenements is twice as great, as in country districts.

The domestic misery was associated with commensurate industrial misery; overwork in insanitary factories and workshops, regardless of the health of the "hands," was the rule.

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[1] The reform of the poor-law in 1834 abolished the act of settlement of 1662, under which parish authorities could remove any laborer to the place from which he came.

The replacement between 1760 and 1800 of factory by domestic manufacture represented a new phenomenon in the world's history, a true industrial revolution. It was the parting of the ages, destined not only to change the life of the people of England from a preponderantly outdoor to a preponderantly indoor character, and to bring for them for many years all the disadvantages of unregulated town life, but also, owing to the rapid development of better roads, of canals, and then of railroads and steamships, to end forever the practical segregation in which countries, and even neighboring communities, had previously lived.

It cannot be wondered at that under these circumstances the general death rate was excessive, and epidemic disease spread with a rapidity and to an extent previously unknown.

The reaction against the *laissez faire* economic teaching began early, and it is in accordance with the fitness of things that the national conscience first rebelled. The earliest evidence of reform was legislation in 1802 on behalf of pauper children indentured to the overseers in textile factories, and there followed subsequent factory and other acts in 1819, in 1833, in 1844 and in 1847, which prohibited the factory employment of children under nine, limited the hours of labor of young persons and of women, and insisted on elementary sanitation in factories. Subsequent factory and mining acts, followed by shop hours acts, and the shop seats' act, have completed a most valuable code of regulations prohibiting overwork, and securing a measure of protection against dangers to health and limb or eyesight during industrial employment. It is noteworthy that the first steps to improve sanitation and to safeguard health by preventing overwork were on the industrial plane. Factory inspectors preceded medical officers of health and sanitary inspectors appointed by local authorities.

Philanthropy was the motive power in initiating factory reform. In securing general sanitary reform, driving power was furnished by the double motive of economy and panic caused by the inordinate expense of poor-law administration, the frequently recurring epidemics of "fever," and the alarming occasional invasions of Asiatic cholera. The sacrifices of life from cholera were truly vicarious, for we owe it largely to these that our national system of vital statistics was initiated in 1837, and that serious efforts at sanitary reform were begun.

The history of these earlier steps is full of interest, but I cannot outline it here. There can be no doubt that, as Simon[1] put it, referring to Dr. Southwood Smith's report to the poor-law commissioners in 1838 (on some of the physical causes of sickness and mortality to which the poor are particularly exposed, and which are capable of removal by sanitary regulations), "The commencement of State interference on behalf of the health of the labouring classes may be said to date from its publication, and to have been in a very important degree determined by its facts and arguments." That the first principles of causation were beginning to be appreciated is shown in the following extract from Queen Victoria's speech in opening Parliament in 1849. In this speech she referred to the ravages of cholera which it had pleased Almighty God to arrest, and added: —

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[1] Reprint of reports, Vol. I, p. 448.

> Her Majesty is persuaded that we shall best evince our gratitude by vigilant precautions against the more obvious causes of sickness, and an enlightened consideration for those who are most exposed to its attacks.

Note that these words and the early attempts at public health legislation, culminating in our great sanitary code, the public health act, 1875, incorporated the tripod on which enlightened public health administration must always be supported, viz.: — (1) attack on the causes of sickness; (2) satisfactory treatment of the sick; and (3) satisfactory care for the poor. I might properly add (4) attack on the causes of poverty, for it is perhaps the chief merit of the great work of Edwin Chadwick that, in the light of reports on local surveys made by Kay, Southwood Smith and others, he was convinced and was able to convince Parliament that a very large share of the total destitution then existing was due to the conditions under which the people lived, and the disease generated by these conditions.

It is commonly stated that in the past, public health administration has concerned itself solely with man's environment, failing to recognize the predominant importance of man himself as a transmitter of disease, and of his personal well-being and protection as the point to which energy should be directed. This cannot be said to have been the intention of the Legislature or of the earlier reformers, though unhappily this limited view received official acceptance, in large measure owing to the increasing incompatibility between poor-law and public health administration, and the spreading over from poor-law to the public health administration of the general influence of "deterrence" as a motive of administration. As time went on this principle came to be realized as contrary to the general interest in anything which concerns the health of the community.

## DIRT AND DISEASE.

The crude generalization emerging from the earlier surveys was the close relation between filth conditions and excessive sicknesses, and the motive behind these inquiries was the desire to remove one of the chief causes of destitution.

So late as 1874 Simon said, "Filth is the deadliest of our present removable causes of disease," and throughout the whole series of his vividly worded and influential reports the same fundamentally important teaching was urged.

Chadwick's earlier reports were similarly influenced by the teaching of Dr. Southwood Smith and his collaborators, to the effect that epidemic diseases as a whole are the direct consequence of local insanitary conditions. This generalization, as we now know, needs a modified and more accurate statement, specialized for each individual disease. In its original form, however, it embodied a realization of the immense importance of the environment to make or to mar the national life; it secured the beginning of our national sanitary improvements; and it laid the foundations of the house of health which as nations we are still building.

The three diseases which were especially regarded as due to filth were cholera, typhus and enteric fever, and the history of public health in England is largely concerned with these three diseases.

## CHOLERA.

The general view, then, held in New as in Old England is well stated in the following extract from the report of the Massachusetts Sanitary Commission, 1850:—

> Atmospheric contagion is generally harmless unless attracted by local causes; . . . that terrible disease, Asiatic Cholera, derives its terrific power chiefly or entirely from the accessory or accompanying circumstances which attend it. It bounds over habitation after habitation where cleanliness abides, . . . while it alights near some congenial abode of filth or impurity. . . . Wherever there is a dirty street, court or dwelling house, the elements of pestilence are at work in that neighbourhood.

And the important moral is drawn that "The person who permits his neighbour's atmosphere to be contaminated by any filth . . . is worse than a highway robber. The latter robs us of property, the former of life." Similarly, Simon in England was impressing that "in order to the prevention of filth diseases, the prevention of filth is indispensable," and that there was need for local authorities "to introduce for the first time, as into savage life, the rudiments of sanitary civilization."

The crude generalization that filth causes disease perhaps persisted too long, and the value of Snow's investigation of the outbreak of cholera in the area of supply of the Broad Street pump (1849 and 1855) was perhaps too slowly appreciated. The influence of Von Pettenkofer's theories on the relation between subsoil conditions and cholera persisted too long, but already in 1856 Simon had accepted the importance of water infection, giving as his general conclusion that "Under the specific influence which determines an epidemic period, fecalized drinking water and fecalized air equally may breed and convey the poison [of cholera]."

Still, it will be noted there persisted the notion of aërial convection of the contagia of cholera and enteric fever, in addition to their convection by dirt, by flies, or the more common contamination of hands or feet, or food by fecal matter; but the importance of water supplies was beginning to be appreciated. Already in 1883 local authorities in England and Wales had outstanding loans for waterworks amounting to £29,000,000, and for sewerage amounting to £15,000,000, sterling, while between 1883 and 1912 they expended out of rates and by means of loans £131,000,000 sterling for waterworks and £89,000,000 sterling for sewerage.

Although we realize now the greater importance of control of excreta from persons specifically infected, we must agree with Simon that communally: —

> Nowhere out of Laputa could there be serious thought of differentiating excremental performances into groups of diarrhœal and healthy. . . . It is excrement, indiscriminately, that must be kept from fouling us with its decay. . . . It is to be hoped that . . . for a population to be thus poisoned by its own excrement will some day be deemed ignominious and intolerable.

And it is still opportune to draw attention to the terrible responsibility incurred by local authorities when they distribute a general supply of water to the inhabitants of their area without taking every possible precaution against contamination. The conveniences and advantages of public water supplies "are countervailed by dangers to life on a scale of gigantic magnitude," and sanitary history has given remarkable illustrations of the need for eternal vigilance in the calamitous experience of Lincoln, Maidstone and Worthing, and of Lowell and other towns and districts.

## TYPHOID FEVER.

With the differentiation of typhoid fever from typhus fever by Stewart and W. Jenner in 1849, it became possible to associate the former with excremental, the latter with respiratory, filth, — "the non-removal of the volatile refuse of the human body." The question still remained whether typhoid fever was producible by "emanations from decomposing organic matter," whether it was "often generated spontaneously by fecal fermentation," as contended by Murchison, who in 1858 proposed the name "pythogenic fever" for typhoid fever, or whether, as indicated by the remarkable observations of William Budd of Bristol, the introduction of specific infection from a typhoid patient was needed to start a local outbreak. Gradually it became clear that specific contamination was necessary to start an outbreak or even to cause a single case of this disease, and between 1870 and 1880 a number of water-borne outbreaks were traced. It also gradually became evident that, however objectionable or even noxious might be the gaseous emanations from leaky drains or sewers, they did not cause typhoid fever or diphtheria. Hence the statement, for instance, of Oliver Wendell Holmes in 1862 (quoted by Dr. Sedgwick) that "the ills of mortality are more obviously affected by drainage than by this or that method of practice," which, expressing universal opinion when it was written, is now known to be accurate only when specific matter from drains contaminates milk or water supplies, or causes infection by actual contact.

With the general recognition of the causal relation between impure water supplies and typhoid fever came the rapid provision of public supplies, on which, as already seen, large public expenditure was incurred; and to this fact is owing, in the main, the rapid reduction in typhoid mortality shown in the following statement: —

| YEAR. | Population of England and Wales (in Millions). | Number of Deaths from Typhoid Fever. |
|---|---|---|
| 1871, | 22⅘ | 12,709 |
| 1881, | 26 | 6,688 |
| 1891, | 29 | 5,200 |
| 1901, | 32⅗ | 5,172 |
| 1911, | 36⅕ | 2,430 |
| 1917, | 33⅗[1] | 977 |

[1] Civilian.

The number of cases notified in England and Wales in 1911 was 13,852; in 1917, 4,601.

There was, it will be noted, a period of apparent cessation of decline in the typhoid mortality between 1891 and 1901, followed by a striking decline between 1901 and the present time. This was due in large measure to the discovery of the relation between contaminated shellfish and enteric fever, and, probably to a less extent, to the realization of the importance of the small minority of cases of this disease who continue after their recovery to spread infection. At the present time typhoid fever promises to become as rare in England as typhus fever or malaria, and with increased care in the protection of food, as well as water supplies, and with the universal hospital treatment of the sick, and observation of their bacterial condition on discharge, this anticipation bids fair to be realized.

## TYPHUS FEVER.

The history of typhus is similar to that of typhoid fever, and when Murchison, in 1858, asserted its spontaneous generation under conditions of overcrowding and bad ventilation he was expressing the considered conclusion of his period: —

> Its great predisposing cause is destitution, while the exciting cause or specific poison is generated by overcrowding of human beings, with deficient ventilation.

Typhus fever was not differentiated from enteric fever in the Registrar-General's returns prior to 1869, but the course of events in later periods can be seen in the following statement: —

| YEARS. | Typhus Fever (Number of Deaths in England and Wales). |
|---|---|
| Ten, 1871-80, | 13,975 |
| Eight, 1903-10, | 210 |
| Seven, 1911-17, | 42 |

The cases in recent years can nearly all be traced to imported infection.

The main factors in the reduction of typhus fever have been the immobilization of infectious cases in fever hospitals, the rigid cleansing and disinfection of invaded households, and the surveillance of persons who have been exposed to infection. The cleaning of insanitary courts, housing improvements, and the associated increased cleanliness of the general population have doubtless aided, and it is a suggestive fact that although the virus of typhus is not yet determined with certainty, and although it has only recently been shown that typhus is a louse-spread disease, the point of extinction of the disease under peace conditions has almost been reached in countries with an efficient sanitary organization and a cleanly people.

With the demonstration that typhoid fever was commonly waterborne, that the spread of typhus fever could be controlled by sanitary surveillance and immobilization of infectious cases in hospital, and that diarrhœal mortality could be reduced by increased municipal and domestic cleanliness, much more rapid improvement in national health occurred in the decennium 1871–80 and in subsequent years.

The course of events for typhoid and typhus fever has already been noted. Before describing further the action taken by central and local public health authorities and the other influences conducing to reform, it is convenient to summarize at this point the general results in the saving of life. Although I do not dwell further on the influence of increase of wages, of better and cheaper food, of sanitary education of the people, of a steadily increasing standard of cleanliness, — in person and in spitting habits, — and of improving home conditions, it will not be assumed they must be omitted in any considered judgment as to the means by which the saving of life shown by the following figures has been secured.

The expectation of life at birth (or mean after-lifetime) in England and Wales in 1871–80 for males was 41.4 years, for females, 41.9 years. It steadily improved decade by decade; based on the experience of 1910–12 the male expectation of life had been prolonged by 10.1 years, and the female by 10.8 years. A very large proportion of the lives saved were lived in the years of greatest value to the community. Comparing 1910–12 with 1871–80, the reduction of the death rate meant that *each year* 116,401 male and 118,554 female lives were saved, and the future lifetime of these persons whose lives were prolonged — assuming a continuance of current experience — would give a gain of nearly ten millions of additional years of life, of which over 70 per cent would be lived at ages fifteen to sixty-five.

Of the annual saving of 234,955 lives, 64 per cent was ascribable to reduced mortality from acute and chronic infectious diseases, and of the mortality under these headings nearly one-third is referable to respiratory disease, the same amount to tuberculosis, one-seventh to scarlet fever, one-thirteenth to measles and whooping cough, the same amount to typhus and enteric fever, and one-sixteenth to diarrhœal diseases.

The gain of life may be further illustrated by the following figures. During the thirty-two years 1881 to 1912, over 17,000,000 deaths occurred in England and Wales. Had the experience of 1871–80 continued throughout the subsequent years, the number of deaths would have been increased by close on 4,000,000.

The preceding review will have made it clear that in the period of earlier slow sanitary reform, although much invaluable work was being done, it was in some measure a groping in the dark, a continuous search for further light while pursuing (or at least advocating in season and out of season) such cleansing and purification of man's surroundings as was evidently needed, and such segregation of the infectious sick as could be secured in the absence of complete information of the cases of sickness. Happily in the case of smallpox there was an additional effective protection in vaccination.

With Pasteur's discoveries was inaugurated a new era in sanitation, the general microbial origin of infectious diseases, inferred from his discoveries, leading to the conclusion that the chief source of disease to others is man himself, and that his surroundings in the main cause disease in so far only as they become a vehicle for conveying disease by direct contact with infected dirt (Sax. *dirt* = excrement), or by swallowing specifically infected foods.

The importance of the sanitary engineer in securing pure water supplies and satisfactory sewerage continues. The sanitary inspector's work in removing nuisances and accumulations, any one of which might be specifically contaminated,[1] and in controlling overcrowding and uncleanliness, as well as in other respects, remains indispensable. But the brunt of guidance in the exact prevention of disease, especially of communicable disease, must necessarily now fall on the epidemiologist, the vital statistician and the laboratory worker. The epidemiologist must always remain the chief of these, putting together the facts supplied by the two other workers, and suggesting and arranging the details appropriate to each investigation. In conducting his inquiries and in searching for further light on obscure points he will need to remember Simon's remarks (eighth report of the Privy Council): —

> In the category of time, far out of human reach, there are circumstances which greatly influence contagion. . . . These almost cosmic arisings or spreadings of disease are facts of cosmo-chemical disturbance which no mere contagionism can explain.

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[1] There is still no evidence to show that for producing the excessive diarrhœa which prevails in insanitary districts specific contamination of the filth accumulations is necessary.

These words had special reference to cholera, and although we still know little or nothing of the mysterious influences which permit cholera when unimpeded to undertake transmundane travels at irregular intervals of time, we can claim with certainty that in any country in which sanitary surveillance is well organized and the internal sanitation is good the spread of cholera need not be feared. Thanks to the great discovery of Jenner and to the complete organization of measures for isolation of the sick, and for vaccination and surveillance of contacts, we can make the same claim for smallpox whenever this mysterious disease begins its occasional world travels.

But we have to confess our continuing relative helplessness in preventing the spread of measles and of acute catarrhs, among our endemic infections, and still more, of influenza when, as recently, it makes its devastating swoop on the entire world, and secures a larger number of victims than the World War itself.

We can recommend isolation of the sick, personal precautions in speaking and in coughing and sneezing, and occasionally may score an isolated success; but we are practically helpless against this enemy. Nor are we better acquainted with the means for preventing the spread of poliomyelitis, and we cannot claim that any measure against the spread of cerebrospinal fever has had undoubted success, except only rapid amelioration of the conditions of overcrowding under which it especially occurs. These instances suffice to show that in the region of respiratory infections — with the one notable exception of tuberculosis, which we can control with certainty whenever we are ready to take the necessary complete measures — we have much to learn. In respect of most diseases due to respiratory infection we are groping in darkness nearly as dense as that which beset Chadwick and Simon in their earlier work, and with little hope of any campaign which will compare in success with that against dirt *en masse*, which was largely effective in reducing the specific infections of cholera, dysentery, enteric fever, of typhus fever and even of tuberculosis.

The great public health requirements for the future are the conquest over acute respiratory infections, including not only affections of the lungs, but probably also measles and whooping cough, cerebrospinal fever and poliomyelitis and their allies, and prevention of cancer. So while thankful for the discoveries already made, for the beneficent work already accomplished, we must hope that the rapid increase of medical research in England and here will in due time enable us to extend the application of preventive medicine to diseases so far uncontrollable.

## The Importance of Vital Statistics.

In England public health progress has been largely actuated by records of mortality, which have served to make the public realize the need for expenditure of money on sanitary reform. Experience has shown, as Dr. J. S. Fulton has expressed it, that "Every wheel that turns in the service of public health must be belted to the shaft of vital statistics." Accurate and complete returns of deaths and their causes are essential in investigating the local and occupational incidence of disease, and in comparing the experience of different communities, and the various weekly, quarterly, annual and decennial reports issued from the Registrar General's department have rendered invaluable service to the cause of public health. "Ye shall know the truth, and the truth shall make you free."

It was not the least of Chadwick's services to the State that he discovered William Farr, who was intrusted with the compilation of, and comment on, our early statistics from 1837 onwards. His reports, with those of Simon, embody the history of sanitary progress in England, and the motives and arguments which actuated it.

The registration of births similarly enabled comparison of birth rates to be made; also of maternal mortality in child-bearing and of infant mortality in different areas and at different parts of the first year of life, and these studies made by medical officers of health, and more exhaustively in the Medical Department of the Local Government Board, have had great influence in determining the intensive work for improving the conditions of child-bearing and of infant rearing, which in recent years has been accomplished.

As time went on it became clear that registration of deaths gave a very imperfect view of the prevalence of disease, and that so far as infectious diseases were concerned, valuable time was lost when preventive action could only be taken after the patient's death. Death registration told of the total wrecks which had occurred during the storm; it gave no information as to early mishaps, enabling others to trim their vessels and thus weather through. It gave a list of killed in battle, not of the wounded also.

And so began gradually, in characteristic British fashion, the notification of infectious cases, the list of notifiable diseases being extended from time to time.

From 1911 onwards the Local Government Board prepared a weekly statement of infectious cases notified in each sanitary area, which was distributed to every medical officer of health. Similar returns of exotic diseases of interest to port medical officers were distributed, and the successive annual summaries for every area of the chief epidemic diseases now constitute one of the most valuable epidemiological records extant.

Collaterally with the notification of infectious diseases, including tuberculosis, to the medical officer of health, occurred the enforcement of notification of various industrial diseases occurring in factories, such as anthrax and lead and arsenic poisoning, to the chief inspector of factories, home office.

It cannot be claimed that notification of acute infectious diseases, still less of tuberculosis, has been complete. It is impossible to discuss the reasons for this in the present address, but the present conditions of medical practice are largely responsible for the partial lack of success. Hasty conditions of work, failure to employ laboratory means of diagnosis or to utilize available consultation facilities (especially in tuberculosis), and lack of training of medical practitioners in preventive medicine, are among the obstacles to further control of disease.

There will not be complete success until means are discovered for enlisting every medical practitioner as a medical officer of health in the circle of his private or public practice, and for securing his services not only in the early and prompt detection of disease, but also in the systematic supervision during health of the families under his care, and in advising them as to habits or methods of life which are inimical to health.

An approximation to this ideal was in the minds of the early sanitary reformers, and it was one of the misfortunes associated with the deterrent policy of the poor-law in medical relief that separation between poor-law and public health appeared to offer the best prospect of sanitary progress.

Had Simon's advice been followed, when the Local Government Board was about to take over the public health duties of the Privy Council, the poor-law organization might, and probably would gradually, have been permeated by public health activities, and thus the sanitary welfare of the poorest class of the community would have been more completely safeguarded on its personal as well as on its environmental side.

In his eleventh report to the Privy Council (1868) Simon recommended adherence to the intention of Mr. Lowe's nuisance act of 1860, which would have identified the health and destitution authorities. He deprecated the institution of "a differently planned organization for objects exclusively of health," subject to the conditions that public health should not be subordinate to poor-law work, and that there should be powers to combine districts for certain purposes, and action through committees in sub-areas.

Had this course been pursued, and had the central control of public health not been preponderantly non-medical and poor-law in sentiment and tradition, more rapid progress in public health would have been experienced. The central evil was intensified by regarding the medical officer of the local government board as merely advisory, and by the retention and extension on a large scale of local inspection by lay officers of the Central Board for conditions which needed systematic medical control.

The problem of the proper relation between destitution and public health, and between the authorities dealing with these, runs right through our past history of social progress, and it is not even yet satisfactorily adjusted.

The gradually increasing dissatisfaction with poor-law administration led to the appointment of a Royal Commission which, after several years' deliberation, in 1909 presented a majority and a minority report.

The dissatisfaction, which these reports justified, may be said to have been inherent in the situation, for the poor-law organization was constantly attempting — more or less under the influence of the principle of "deterrence" — two incompatible tasks: to prevent undue dependence upon parochial assistance, and to give to those needing them the medical and nursing assistance which the principles of preventive medicine require should be given unstintingly and completely freed from any deterrent element. Although in many parochial areas admirable medical work was done, this was the exception rather than the rule, and public sentiment rebelled against the giving or the receiving of medical assistance to which was attached the "poor-law stigma." Both reports recommended the scrapping of the poor-law machinery by abolishing the present boards of guardians and the general mixed workhouse, and the minority report went farther, proposing to complete the supersession of the poor-law by various preventive authorities which were already partially in operation. Thus everything connected with the treatment of the sick would be transferred to the public health authorities, the care of school children to education authorities, of lunacy and the feeble-minded to already existing asylum committees, and so on.

Behind these proposals lay the principle that *the treatment and the prevention of disease cannot administratively be separated without injuring the possibilities of success of both,* and this is a principle which happily is becoming more generally accepted.

Before the report of the Poor-Law Commission was issued, examples of the application of this axiom existed in the isolation and treatment of patients with acute infectious diseases; in the increasing provision for the treatment of tuberculosis; in the extension of provision for care of parturient women and for their infants; and in the system of school medical inspection followed to some extent by treatment.

It is convenient to add here that under each of these headings great extensions have been made since 1911, and an even more spectacular public provision of treatment, as the best method of preventing further extension of disease, is exemplified in the gratuitous and confidential diagnosis by laboratory assistance and treatment of venereal diseases now given in every large town in the country, the Central Government paying three-fourths and the local authority one-fourth of its cost. In order further to secure the success of this treatment, — which is provided for all comers, with no residential or financial conditions, — the Legislature has passed an enactment forbidding the advertisement or offering for sale of any remedy for these diseases, and forbidding their treatment except by qualified medical practitioners.

It is one of the great misfortunes of more recent public health administration that the report of the Royal Commission on the poor-laws has not hitherto been made the subject of legislation. It would not have been an insuperable task to find a common measure of agreement between the majority and the minority reports. Indeed, an adjustment has recently been made between these two reports as the result of the deliberations of a House of Commissions Committee, over which Sir Donald Maclean presided, and it may be hoped that ere long this will mean the realization of a much belated reform of local administration.

This forms an indispensable step in the needed further struggle against the problems of destitution. So much of destitution is due to sickness that the separation of the two problems is inconsistent with success. "One-third of all the paupers are sick, one-third children, and one-quarter either widows encumbered by young families, or certified lunatics." There are economic causes of poverty apart from sickness, but it is essential to remember that every disease which is controlled frees the community not only from a measurable amount of sickness, but from the amount of poverty implied by this sickness.

Had the policy of transfer of the duties of poor-law authorities to the councils of counties and county boroughs been adopted, these last-named authorities would already possess a medical service for the poor, employing some 4.000 doctors; they would be in possession of the large infirmaries and other medical institutions of the poor-law, and with reforms and readjustments of these which are urgently required, and with combination of the hospital arrangements of poor-law and public health, would have a greatly improved medical service freed from poor-law shackles, which could gradually be extended as needs and policy indicate. The fusion of these two services with the school medical service would have been an easy further step, and England would by this time have built up a national medical service for the very poor, for all purposes of public health administration, and for children and their mothers in special circumstances.

Political circumstances, into which it is unnecessary to enter, led to the adoption of a different course. The national insurance act, 1911, was passed, giving sickness and invalidity benefits to those employed persons below a certain income who could contribute a weekly sum, which was considerably less than half the estimated cost of the benefits to be received. An additional medical service, further complicating the already existing medical services of the poor-law, public health and educational authorities, was set up.

The establishment of national insurance against sickness and disablement in the United Kingdom exemplifies the contagiousness, under modern conditions of life, of a new course adopted in any country, and Bismarck's attempt to counteract socialism by insurance has been responsible for international, State and official experimentation in insurance which has not generally been well advised, the social good of which remains to be shown, and which is associated in England with extravagant cost of administration.

Personal insurance is a praiseworthy and valuable provision against future contingencies, and on its non-medical side free from drawbacks. Neither on its medical nor on its non-medical side, however, is it an alternative to prevention of disease, and the national insurance act in England must be held in the main to have delayed public health reform. True, it has educated the English public to think in regard to sickness in millions, when previous provisions for the treatment and prevention of sickness had been thought of in thousands of pounds; and it has caused an extension of provision for the institutional treatment of tuberculosis, which probably has been more rapid than it would otherwise have been. It should be added that, owing to the natural insistence of insured tuberculous patients on treatment in a sanatorium, and to the desire of local insurance committees and their officers to satisfy insured persons, sanatoria have often been filled with unsuitable patients, sent there regardless of relative social and public health needs. The maternity benefit (of a sum of money on the birth of an infant to the wife of an insured person, or to an employed woman) similarly is given unconditionally, and should be replaced by the provision of service needed at this time (doctor or midwife, nurse, domestic assistance), which would insure the welfare of both mother and infant.

Apart from other reforms the transfer of medical provision, of provision for tuberculous patients, and for parturient women to public health authorities is urgently needed, and the service should be given according to need, irrespective of insurance. The valuable fund for medical research has already been placed under the Privy Council.

The absurdity of regarding insurance as anything beyond a possibly useful handmaiden and auxiliary to public health, when strict administrative arrangements are made for this purpose, may be illustrated by the question as to what would have been the result in sanitary progress if Chadwick or Simon had persuaded the government of their day to insure a favored section of the public against the risk of typhus or smallpox or tuberculosis?

Under the national insurance act, medical domiciliary assistance — but only to the extent which is within the competence of a medical practitioner of average ability — is provided under contract for one-third of the total population, and evidently this implies an immense abstraction from ordinary private medical practice. There is no provision for consultant and expert facilities when required (except for tuberculosis) for the nursing of patients or for institutional treatment of any disease.

In view of the preceding facts and of other considerations which I have not mentioned, reconstruction of the English insurance scheme is obviously required. The scheme cannot persist in its present form. The already accomplished amalgamation of the local government board and National Insurance Commission should make radical changes easier; an equally important step would be the transfer of the medical functions of the local insurance committees to public health authorities. The creation of these independent committees was one of the greatest blunders of the national insurance act, which was conceived ill-advisedly, had too short an incubation, and suffered a premature and forced delivery, and we may hope that ere long it may be replaced entirely, on its medical and hygienic side, by a rapid extension of the medical activities of the public health service which will conduce to the welfare of the whole nation.

It is difficult to justify the continuance of State subsidization of benefits for a favored portion of the wage-earning classes, when poorer persons who do not come within the category of employed persons or who fall out of employment, and when clerks and others on limited salaries who are unable to provide adequately for sickness, are left unprovided for.

What is most urgently needed is a medical service which will give for all who cannot afford them hospital treatment and the services of consultants and of scientific aids to diagnosis and treatment whenever required, and which will provide nurses during illness treated at home, when this is asked for by the doctor in attendance.

Outside the operation of the national insurance act these services have been provided to a steadily increasing extent, but in a characteristically British fashion. They have grown, largely under voluntary management, and as exemplifications of Christian philanthropy, though the official has rapidly overtaken the voluntary provision of hospitals and nursing, the two working side by side, each in their respective spheres, and, on the whole, with cordial co-operation. The extent to which institutional treatment with its more satisfactory arrangements is replacing the domiciliary treatment of disease may be gathered from the following striking facts: —

In England and Wales, of deaths from all causes in 1881, 1 in every 9, and in 1910, 1 in every 5, occurred in public institutions.

In London, of deaths from all causes in 1881, 1 in every 5, and in 1910, 2 in every 5, occurred in public institutions.

The facts as to pulmonary tuberculosis are even more significant: in the year 1911, in England and Wales, 34 per cent of male and 22 per cent of female, and in London, 59 per cent of male and 48 per cent of female, deaths from pulmonary tuberculosis occurred in public institutions, and as each of these patients spent on an average several months in hospital at the most infectious stage of their illness, a material annual reduction in the possibility of massive infection of relatives and others has been secured.

This institutional treatment of the sick has been one of the chief influences counteracting the pernicious effects of industrialism and urbanization. It has relieved housing difficulties at a time when insufficient bedroom accommodations is most injurious, and it has secured year by year for a steadily increasing proportion of the total population the improvements of modern surgery and medicine as practiced in institutions, which permit of the poor thus treated receiving more satisfactory and more hopeful treatment than is obtainable for a large proportion of other classes of society.

My paper has already extended beyond the permitted scope. I shall have other opportunities of explaining the rapidly increasing part which the State and public health authorities are taking in the hygiene and care of motherhood and childhood and of school children; in the provision of additional nursing services for the sick; in the rapid growth in numbers of public health nurses, health visitors, school nurses, etc.; in special schemes for the treatment of tuberculosis and of venereal diseases; also the circumstances under which the Central Government is to a rapidly increasing extent paying half (or, in certain instances, three-fourths) of approved local expenditure on the provision of hygienic, nursing and medical services, and I do not therefore dwell on these points further.

Nor need I comment here on the remarkable fact that the government under present circumstances has departed from the economic position that houses built by local authorities must be able to be let at a rental covering all outgoings.

In an address at the annual meeting of the American Public Health Association I shall have an opportunity of dealing with problems of local and central government, and with the training and appointment of medical officers of health, though any review, which omitted from consideration, on the one hand, the value of specially trained whole-time health officers, and, on the other hand, the health significance of the general advance in the standard of medical treatment, as factors of prime importance in securing the already secured improvement in human life and health, would give a most imperfect picture of the actual facts.

Such figures as I have given, showing saving and prolongation of life during the last fifty years, are apt, if left uncorrected, to create a complacent warmth tending to public health inertia. It may conduce further to this folding of the hands when I state that Simon in his first report to the local government board expressed the opinion that the half million deaths a year, approximately, which occurred in 1871 in England and Wales were a third (125,000) more numerous than they would have been if existing knowledge of the chief causes of disease had been reasonably well applied throughout the country; and further, that had the mortality experience during 1911–15 held good for 1871, the deaths in that year would have been reduced by 200,000 instead of by 125,000, the ideal then aimed at by Simon.

But with increased knowledge we know that a larger proportion of diseases is preventable than was formerly supposed. It will be easy within the next ten years to reduce the present death rate by one-third of its present amount, given systematic and adequate action on the part of public health authorities and an effective educational propaganda among the general public. More important still, an even larger proportion of mankind's total illness can be avoided, and life on a higher plane of health secured, as well as life prolonged to its normal limit.

Preventive medicine can never be satisfied until it has attained Isaiah's ideal (Isaiah lxv, 20) "There shall be no more thence an infant of days, nor an old man that hath not filled his days; for the child shall die an hundred years old."

# THE FUTURE OF PUBLIC HEALTH WORK IN THE UNITED STATES.

By Allan J. McLaughlin, M.D., Assistant Surgeon-General, United States Public Health Service.

To forecast the future of public health work in the United States requires powers of divination and the gift of prophecy not given to mortal man. It is possible, however, to map out the ideal scope of public health work, its objects and aims, and to estimate that some time in the future the entire field will be covered and its objects and aims attained.

An ideal health department in a nation such as ours demands a partnership of Federal, State and local health departments, in order to secure team-work of all agencies from the Federal government to the ultimate unit of health work, — the individual citizen. This partnership should be so clearly defined, so universally understood and so conscientiously utilized that all fields of public health work will be covered with the minimum of overlapping and friction. In covering the entire field of public health without duplication or conflict it is necessary to consider the powers and duties of health departments, Federal, State and local, and the constitutional limitations thereon.

## Federal Powers and Duties.

The functions of the United States Public Health Service may be considered under the following heads: —

1. Police.
2. Investigative.
3. Demonstrative.
4. Co-ordinative.

Police power has been given very sparingly to Federal health authorities and delegated by States in large measure to local authorities, because the ultimate application of police power to the individual citizen logically belongs to the agency with which he is in direct contact, viz., the local board of health.

It is clear that police power not specifically given by the Constitution to Federal agencies is reserved to the States or to the people. There is also police power implied but not expressed in the Constitution inherent in the Federal government in connection with the general welfare and interstate commerce clauses. This power is necessary to cover conditions not amenable to or corrigible by State police power, and its exercise cannot be a usurpation of State authority.

Congress has repeatedly given police power by statute to Federal agencies to cover such conditions, but has always maintained the attitude that in health matters the State and local agencies should be utilized to the limit of their legitimate fields.

The question of delimiting the police powers of Federal and State authorities is an academic one, and for practical purposes satisfactory results can be secured in most sections by utilizing State power alone, co-ordinated by the Federal Health Service in a national program.

As the State health machinery becomes more highly organized and perfected, the need of exercise of Federal police power will diminish and the need of Federal co-ordinative activity will increase.

## INVESTIGATIVE FUNCTIONS.

The investigative function of the Public Health Service has no limit other than the amount of money which may be appropriated by Congress.

The act of 1912 authorized the service to study and investigate the diseases of man and conditions influencing the propagation and spread thereof, including sanitation and sewage, and the pollution directly or indirectly of the navigable streams and lakes of the United States.

Under this very broad authority, investigation of any phase of public health work may be undertaken. The act further provided for the publication of information for the use of the public.

Sufficient funds should be secured from Congress to undertake and carry on such research as is necessary in order to furnish to the health office in the field diagnostic, prophylactic and curative weapons for the suppression of communicable disease.

The economic advantage of doing this in one hygienic laboratory rather than in forty-eight is at once apparent.

## Demonstrative Functions.

The work done under the investigative authority of the act of 1912, especially the field work, is nearly always demonstrative, and can be utilized as public health demonstrations of all kinds.

In addition, Congress has given specific authority for demonstrations in rural sanitation contingent upon partial support by State or local agencies.

Nothing compares in effectiveness with an actual demonstration of how work should be done in the individual communities. Here, again, the United States Public Health Service is limited only by the amount of money appropriated by Congress.

## Co-ordinative Functions.

The co-ordinative function of the Public Health Service in achieving national success against any public health problem is perhaps the most important function which the service exercises. Some Federal co-ordinating agency is necessary in order to secure a synchronous attack upon any disease, with uniformity of method, over the entire area of the United States. To secure the maximum of improvement in our national health we must have nation-wide programs for each problem with which health officers are confronted.

The example of our venereal disease campaign serves to show what may be accomplished in other fields by the same methods.

The co-ordinative function of the Federal Public Health Service is but the national demonstration of what is exercised by State and local health authorities over smaller areas.

In other words, public health organization — Federal, State and local — should have the following relationship: —

| Supervisory and co-ordinating authority: — | Working units to be co-ordinated: — |
|---|---|
| United States Public Health Service. | State Departments of Health. |
| State Department of Health. | Local health departments. |
| Local health departments. | Individual citizens. |

The co-ordinating and supervisory authority furnishes the program in order to secure team-work, and endeavors to have this program carried out by all the units within its jurisdiction.

The Public Health Service has a detailed comprehensive nation-wide program for every public health problem, but these programs cannot be put into effect without adequate funds.

The service now possesses all the authority and function which can be given by Congress to a Federal health agency within the limits of the Constitution.

## Scope of Health Departments.

Many health departments as constituted to-day fall far short of the ideal in scope and activity. In many the aims are narrowed or confined to communicable disease, either by their own sluggishness or by the encroachments of more active agencies.

The aims of health departments should be the eradication of preventable disease, the elimination of corrigible physical and mental defects, and the maintenance of all individuals in the best possible physical and mental condition.

Many health departments limited themselves in their basic legislation, but let it be said to the undying credit of the founders of the Massachusetts State Health Department, that even at that time — fifty years ago — they showed a breadth of vision and a keenness of foresight which challenges our admiration to-day. You will remember that in the act creating the State Board of Health the Board was directed to "take cognizance of the interests of health and life among the citizens of the Commonwealth." This certainly is broad enough in scope to permit expansion to the ideal health department.

I desire to state emphatically that in my opinion there should be only one health department within any legal jurisdiction, and that special health departments for any age group or class of the population are an unwarranted encroachment upon the just powers of the health department.

Boards of labor and industry and boards of education have shown tendencies to build up little health departments for industrial workers or the special group of school age. These very dangerous tendencies are unsound in principle and will not prove successful in practice, whether the attempt be Federal, State or local, because divided authority produces conflict and deadlock instead of team-work and progress.

The supervision of all health work must be conceded to the health authorities, and any usurpation of function now being carried on by any agency, official or unofficial, should cease at the earliest possible moment.

## Great Value of Unofficial Agencies.

The encroachment of official bodies upon health work must not be tolerated, but the work of unofficial agencies is in quite another category. Many unofficial agencies were pioneers in health problems such as tuberculosis and infant mortality at a time when health officials were unable, and in some cases, I regret to say, unwilling, to expand over their own legitimate field. I believe in most instances the indifference of health officials to health problems outside of the well-known "contagious" diseases was more apparent than real, and that their failure to pre-empt promptly this field was due in most instances to lack of proper financial support.

The magnificent work of the unofficial agencies must be recognized, and efforts made to correlate their work under official supervision until funds are available for the taking over by the official agency of the strictly official part of their work. In a long experience with unofficial health agencies I have never known an instance where the unofficial body refused to recognize the powers of the official agency, and I have always found them ready to surrender official work to the proper agency when that agency was ready.

In the pursuit of the ideal let us be patient and just. Let us utilize the unofficial agencies by co-ordinating their activities under the supervision of the health department until the department is really ready to take over the work.

It will be many years before this will be possible, and even then the necessity for unofficial organizations will persist. They will, even under ideal health departments, fulfil a very useful function, supportive rather than executive, and reserving their private right to give helpful and constructive criticism.

### Need of Additional Weapons for Fighting Disease.

Aspirations for the ideal and hopes for the future prompt me to mention the probability that some of the weapons we need in fighting disease will be furnished by our laboratory workers of the future. We need laboratory aids to more prompt and accurate diagnosis. We lack procedures which will determine whether an individual is immune or susceptible to a given disease. We lack prophylactic and curative remedies for most of our contagious diseases. We possess weapons of this charaeter against diphtheria, but what about measles, scarlet fever, poliomyelitis and influenza?

### Value of Health Officials' Conferences.

I cannot miss this opportunity to accentuate the inestimable value of health officers' meetings and conferences, such as the State and Territorial Health officers, with the Surgeon-General, the Massachusetts Association of Boards of Health, the American Public Health Association and others.

The day has passed when health officers, Federal, State or local, can play a lone hand in the game of public health with any prospect of real success. Team-work is the keynote of present-day success, and selfishness and smug complacency should have no place in the makeup of the health officer. Health officers of great States and big progressive cities with fine departments, functioning smoothly under their control, should meet and rub elbows with health officers of less fortunate areas, and give them the benefit of their experience and constructive ability. These meetings are not without profit for the best health officers. I know of no State or city whose health organization is so perfect that a lesson may not be learned from what is done in other States and cities with less perfect organizations.

### FUTURE WORK IN INFANT MORTALITY AND CHILD HYGIENE.

In our future work as health officers we must concentrate our efforts more and more upon the problem of infant mortality and the ideal development of child hygiene. If any criticism of the past work of health departments is fair, — and I believe they deserve praise only, — it would be this, that their work was directed more toward what existed — that which confronted them — rather than toward the preservation of child life and the prevention of defects acquired or accentuated before adolescence.

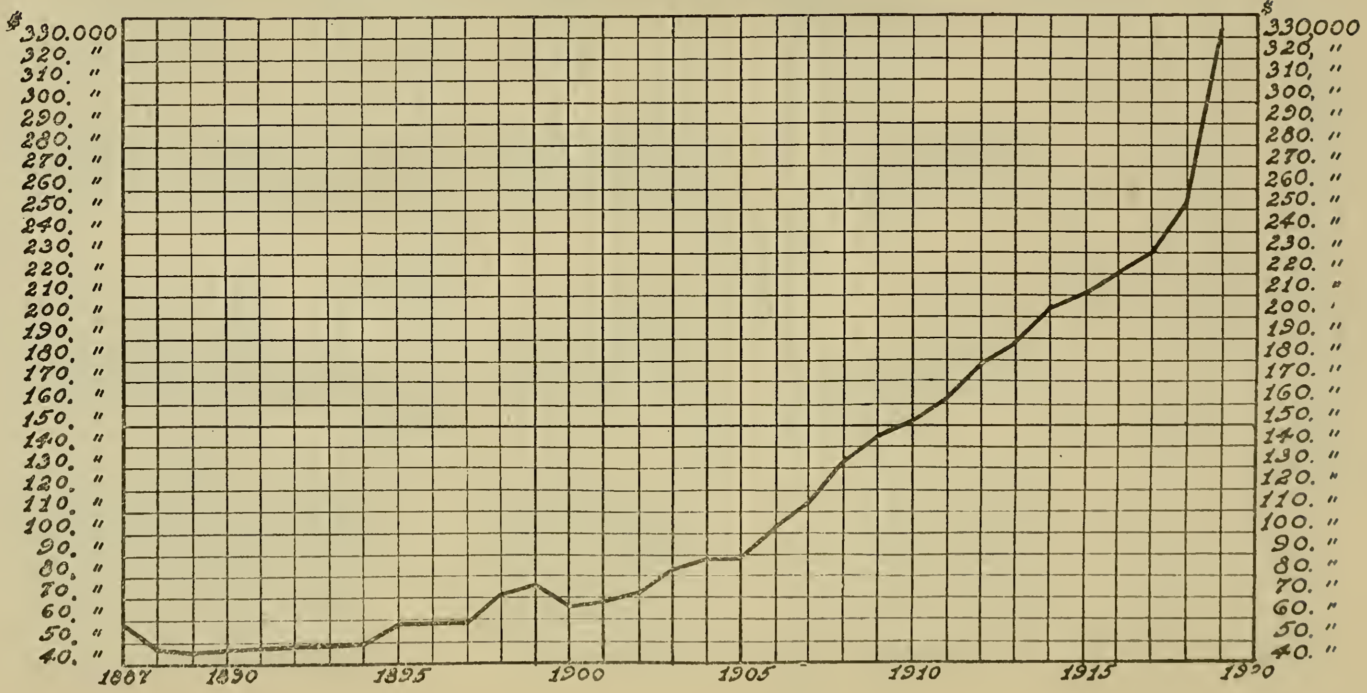
Massachusetts has gone further, perhaps, than any other State in co-ordinating under official direction all the child conservation agencies, official and unofficial, in a splendid program. Massachusetts is therefore a natural leader in child conservation, but possesses one grave defect which must be corrected in order to secure ideal results. I refer to the lack of centralized control by the State over the medical inspection of school children. For years there has existed in Massachusetts a law requiring all cities and towns of more than 10,000 population to maintain medical inspection of school children, but there is no provision for central control, to determine how this examination should be conducted. The Massachusetts Legislature should at the earliest possible moment authorize the State Department of Health to prepare and prescribe standards and minimum requirements for the medical inspection of school children.

In closing may I again refer to the necessity for a real partnership, Federal, State and local?

Let us waste no time in a futile effort to delimit accurately the police power and authority of each of these three jurisdictions, but let us leave such discussion to the academicians. As practical men let us disregard the theoretical boundaries of varying police jurisdictions and attack each health problem by joint concerted action according to a nation-wide program, remembering that the spread of disease recognizes no boundaries — local, State or Federal.

# MASSACHUSETTS BOARD OF HEALTH

## TOTAL ANNUAL APPROPRIATIONS



## THE MEMBERS OF THE BOARD.

The following is a list of the members of the State Board of Health in order of their appointment: —

### STATE BOARD OF HEALTH.

June 30, 1869, to June 30, 1879.

| Service began. | Name. | City or Town. | Occupation. | Length of Service in Years. | Service ended. |
|---|---|---|---|---|---|
| 1869 | Henry I. Bowditch, | Boston, | Physician, | 10 | 1879 |
| 1869 | George Derby, | Boston, | Physician, | 5 | 1874[1] |
| 1869 | P. Emory Aldrich, | Worcester, | Lawyer, | 4 | 1872 |
| 1869 | William C. Chapin, | Lawrence, | Manufacturer, | 3 | 1871 |
| 1869 | Warren Sawyer, | Boston, | Business, | 5 | 1873 |
| 1869 | Richard Frothingham, | Charlestown, | Historian, | 11 | 1879 |
| 1869 | R. T. Davis, | Fall River, | Physician, | 10 | 1879 |
| 1872 | G. V. Fox, | Lowell, | Lawyer, | 2 | 1873 |
| 1874 | J. C. Hoadley, | Lawrence, | Civil engineer, | 5 | 1879 |
| 1874 | Thomas B. Newhall, | Lynn, | Business, | 6 | 1879 |
| 1874 | David L. Webster, | Boston, | Manufacturer, | 6 | 1879 |
| 1874 | D. F. Folsom, | Boston, | Physician, | 5 | 1879 |

### STATE BOARD OF HEALTH, LUNACY AND CHARITY, COMMITTEE ON HEALTH.

July 1, 1879, to May 26, 1886.

| | | | | | |
|---|---|---|---|---|---|
| 1879 | Henry I. Bowditch, | Boston, | Physician, | 1 | 1879 |
| 1879 | R. T. Davis, | Fall River, | Physician, | 4 | 1883 |
| 1879 | J. C. Hoadley, | Lawrence, | Civil engineer, | 3 | 1882 |
| 1880 | Alfred Hosmer, | Watertown, | Physician, | 2 | 1882 |
| 1880 | Thomas Talbot, | Billerica, | Lawyer, | 4 | 1884 |
| 1880 | George P. Carter, | Cambridge, | Business, | 3 | 1883 |
| 1882 | Henry P. Walcott, | Cambridge, | Physician, | 1 | 1883 |
| 1882 | John Fallon, | Lawrence, | Business, | 4 | 1886 |
| 1882 | Edgar E. Dean, | Brockton, | Physician, | 2 | 1884 |
| 1883 | Charles E. Donnelly, | Boston, | Lawyer, | 3 | 1886 |
| 1883 | Reuben Noble, | Westfield, | Business, | 2 | 1885 |
| 1884 | Samuel A. Green, | Boston, | Physician, | 2 | 1886 |
| 1884 | Edward Hitchcock, | Amherst, | Physician, | 2 | 1886 |

### STATE BOARD OF HEALTH.

May 26, 1886, to July 1, 1914.

| | | | | | |
|---|---|---|---|---|---|
| 1886 | Henry P. Walcott, | Cambridge, | Physician, | 28 | 1914 |
| 1886 | Hiram F. Mills, | Lawrence, | Civil engineer, | 28 | 1914 |
| 1886 | Julius H. Appleton, | Springfield, | Manufacturer, | 4 | 1890 |
| 1886 | Frank W. Draper, | Boston, | Physician, | 15 | 1901 |
| 1886 | Thornton K. Lothrop, | Beverly, | Lawyer, | – | – |
| 1886 | Elisha M. Jones, | Taunton, | Physician, | 7 | 1893 |
| 1886 | James White, | Williamstown, | Business, | 1 | 1887 |
| 1887 | Theodore C. Bates, | No. Brookfield, | Manufacturer, | 1 | 1888 |
| 1889 | Joseph W. Hastings, | Warren, | Physician, | 5 | 1894 |
| 1890 | John M. Raymond, | Salem, | Lawyer, | 1 | 1892 |
| 1891 | Gen. Morris Shaff, | Pittsfield, | Soldier, | 2 | 1892 |
| 1893 | James W. Hull, | Pittsfield, | Insurance, | 9 | 1911 |
| 1893 | Gerard C. Tobey, | Wareham, | Lawyer, | 9 | 1911 |
| 1893 | Charles H. Porter, | Quincy, | Insurance, | 8 | 1911 |
| 1895 | Julian A. Mead, | Watertown, | Physician, | 10 | 1914 |
| 1902 | John W. Bartol, | Boston, | Physician, | 5 | 1907 |
| 1907 | Robert W. Lovett, | Boston, | Physician, | 8 | 1914 |
| 1911 | Clement F. Coogan, | Pittsfield, | Business, | 3 | 1914 |
| 1911 | Joseph A. Plouff, | Ware, | Lawyer, | 3 | 1914 |
| 1911 | C. E. McGillicuddy, | Worcester, | Lawyer, | 3 | 1914 |
| 1913 | Milton J. Rosenau, | Brookline, | Hygienist, | 2 | 1914 |

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[1] Died in office.

## STATE DEPARTMENT OF HEALTH.

JULY 1, 1914, TO —

### Commissioners.

| Service began. | NAME. | City or Town. | Occupation. | Length of Service in Years. | Service ended. |
|---|---|---|---|---|---|
| 1914 | Allan J. McLaughlin, | United States Public Health Service, | Physician, | 4 | 19 8 |
| 1918 | Eugene R. Kelley,[1] | Boston, | Physician, | – | – |

### Council.

| Service began. | NAME. | City or Town. | Occupation. | Length of Service in Years. | Service ended. |
|---|---|---|---|---|---|
| 1914 | William T. Sedgwick,[1] | Boston, | Biologist, | – | – |
| 1914 | George C. Whipple,[1] | Cambridge, | Sanitary engineer, | – | – |
| 1914 | Milton J. Rosenau, | Brookline, | Hygienist, | 1 | 1915[2] |
| 1914 | William J. Gallivan,[1] | Boston, | Physician, | – | – |
| 1914 | David L. Edsall,[1] | Boston, | Physician, | – | – |
| 1914 | Joseph E. Lamoureux,[1] | Lowell, | Physician, | – | – |
| 1914 | John T. Wheelwright, | Boston, | Lawyer, | 5 | 1919 |
| 1919 | Warren C. Jewett,[1] | Worcester, | Retired, | – | – |

AS CONSTITUTED SEPTEMBER 15, 1919.

### Commissioner of Health, Eugene R. Kelley, M.D.

### Public Health Council.

EUGENE R. KELLEY, M.D., *Chairman.*

WM. T. SEDGWICK, Ph.D.
GEORGE C. WHIPPLE, S.B.
DAVID L. EDSALL, M.D.

JOSEPH E. LAMOUREUX, M.D.
WM. J. GALLIVAN, M.D.
WARREN C. JEWETT.

| | |
|---|---|
| Division of Administration, | ——— |
| Division of Sanitary Engineering, | Director and Chief Engineer, X. H. GOODNOUGH, C.E. |
| Division of Communicable Diseases, | Director, BERNARD W. CAREY, M.D. |
| Division of Water and Sewage Laboratories, | Director and Chemist, H. W. CLARK. |
| Division of Biologic Laboratories, | Director and Pathologist, MILTON J. ROSENAU, M.D. |
| Division of Food and Drugs, | Director and Analyst, HERMANN C. LYTHGOE, S.B. |
| Division of Hygiene, | Director, MERRILL E. CHAMPION, M.D. |

### State District Health Officers.

| | |
|---|---|
| The Southeastern District, | CHARLES W. MILLIKEN, M.D., Barnstable. |
| The Eastern District, | RUSSELL B. SPRAGUE, M.D., Boston. |
| The Northeastern District, | LYMAN A. JONES, M.D., Swampscott. |
| The North Midland District, | CHARLES E. SIMPSON, M.D., Lowell. |
| The South Midland District, | ARTHUR A. BROWN, M.D., Worcester. |
| The Wachusett District, | FRANCIS A. FINNEGAN, M.D., Fitchburg. |
| The Connecticut Valley District, | GEORGE T. O'DONNELL, M.D., Springfield. |
| The Berkshire District, | JAMES A. KEENAN, M.D., Pittsfield.[3] |

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[1] Present incumbent.
[2] January 27.
[3] Acting.

## TITLES OF MANY OF THE SPECIAL INVESTIGATIONS CONTAINED IN THE REPORTS OF THE STATE BOARD OF HEALTH.

The annual reports of the State Board of Health contain the reports of the work of the various departments of the Board, together with special investigations or contributions during the year from any laboratory or department of the Board. Many of the researches carried on in the laboratories of the Board have been published in medical, chemical, engineering and other journals. The following is a list of titles of some of the principal special papers that have appeared in the reports of the State Board of Health.

### On Matters relating to Water Supplies and Sewerage.

**1870.** Poisoning by Lead-pipe used for the Conveyance of Drinking Water.
Mystic Pond and its Source of Supply.
**1871.** Mill-dams and Other Water Obstructions.
**1872.** On Sewerage; Sewage; the Pollution of Streams; Water Supply of Towns.
Drainage for Health.
**1873.** The Present Condition of Certain Rivers of Massachusetts together with Considerations touching the Water Supply of Towns.
The Use of Zinced or Galvanized Iron for the Storage and Conveyance of Drinking Water.
**1875.** A Special Report on —
1. The Pollution of Rivers.
2. The Water Supply, Drainage and Sewerage of the State from a Sanitary Point of View.
3. The Disposal of Sewage.
4. Summary and Recommendations.

Defects in House Drainage and their Remedies.
The Surface Drainage of the Metropolitan District.
**1876.** The Pollution of Streams.
Sewerage; its Advantages and Disadvantages, Construction and Maintenance.
**1877.** Drainage and Health; Sewerage and the Pollution of Streams.
The Filtration of Potable Water.
**1878.** Common Defects in House Drains.
**1879.** Contamination of Well Waters.
The Pollution of Streams.
Algæ observed in a Storage Basin of the Boston Supply, and Some Impurities of Drinking Water caused by Vegetable Growths.
The Effect on Health of Certain Algæ in the Mystic Water Supply.
The Drainage of Summer Hotels and Country Boarding Houses.
1880. The Pollution of Streams.
Separate System of Sewerage.

**1882.** The Sewerage of Nahant.

**1883.** Tubular Wells for Domestic Water Supply.

Reports Relative to the Sewerage and Sanitary Conditions of Nantucket.

**1885.** Disposal of Sewage at the Massachusetts Reformatory.

**1889.** Report upon the Pollution of Ice Supplies.

**1890.** Examination of Water Supplies and Purification of Sewage and Water by Filtration.

Suggestions as to the Selection of Sources of Water Supply.

Typhoid Fever and its Relation to Water Supplies.

Special Reports on the Early Work at the Lawrence Experiment Station. Two Volumes. Mentioned previously.

**1892.** Interpretation of Water Analysis and the Amount of Dissolved Oxygen in the Water, Ponds and Reservoirs at Different Depths in Winter under the Ice, and the Mineral Contents of Some Waters in Massachusetts.

A Study of Odors observed in the Drinking Waters of Massachusetts.

Seasonal Distribution of Microscopic Organisms in Surface Waters.

Experiments upon the Purification of Sewage at the Lawrence Experiment Station.

Experiments at the Lawrence Experiment Station upon the Purification of Water by Sand Filtration.

Some Physical Properties of Sand and Gravels with Special Reference to their Use in Filtration.

Sewage Disposal of Cities and Towns of Massachusetts by Intermittent Filtration.

Report upon Artificial Ice made in Massachusetts.

**1893.** On the Amount and Character of Organic Matters in Soil and its Drawing on the Storage of Water in Reservoirs.

Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station.

The Filter of the Water Supply of the City of Lawrence and its Results.

**1894.** Composition of the Water of Deep Wells.

The Bacterial Contents of Certain Ground Waters.

Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station.

Physical and Chemical Properties of Sands.

**1895.** Sewage Purification of the Cities and Towns of Massachusetts.

The Hardness of Water and Methods by which it is determined.

Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1895.

Methods employed for the Quantitative Determination of Bacteria in Sewage and Water.

**1896.** Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1896.

**1897.** Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1897.

**1898.** Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1898.

An Investigation of the Action of Water upon Lead, Tin and Zinc with Special Reference to the Use of Lead Pipes in Massachusetts Water Supplies.

Purification of the Sewage of Cities and Towns in Massachusetts.

**1899.** The Occurrence of Iron in Ground Waters and Experiments on Methods of Removal.

**1900.** The Action of Water upon Metallic or Metal-lined Service Pipes and Methods for the Separation and Determination of Metals in Water.

An Investigation in regard to the Retention of Bacteria in Ice when Ice is formed under Different Conditions.

Studies of the Efficiency of Water Filters in removing Different Species of Bacteria.

Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1900.

The Examination of Spring Waters.

**1901.** Experimental Filtration of the Water Supply of Springfield and Ludlow, Mass.

A Study of the Stability of the Effluent of Sewage Filters of Coarse Materials, including Investigations upon Putrefaction and Secondary Decomposition.

Bacteriological Studies at the Lawrence Experiment Station with Especial Reference to Determination of B. Coli.

Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1901.

**1902.** On the Value of Tests for Bacteria of Specific Types as an Index of Pollution.

Effect of Sewage Disposal in Massachusetts.

Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1902.

**1903.** Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1903.

**1904.** Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1904.

**1905.** Experiments on the Removal of Organisms from the Waters of Ponds and Reservoirs by the Use of Copper Sulphate.

Investigations concerning Absorption and Sedimentation of Copper Sulphate used as an Algicide and concerning the Bactericidal Properties of Copper and Copper Sulphate.

Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1905.

Studies on the Pollution of Shellfish.

**1906.** Experiments on the Purification of Sewage and Water at the Lawrence Experiment Station in 1906.

Significance of the Numbers of Bacteria in Water and Sewage Developing at Different Temperatures.

1908. A Review of Twenty-one Years' Experiments upon the Purification of Sewage at the Lawrence Experiment Station.
1909. Disposal and Purification of Factory Wastes or Manufacturing Sewage.
1910. Studies of the Relative Corrosion of Metal Pipes by Waters.
1911. Experiments upon the Disinfection of Sewage and the Effluents from Sewage Filters.
1917. Investigations in regard to Purification of Sewage and Water at Lawrence.
1918. Investigations upon the Purification of Sewage and Water at the Lawrence Experiment Station during the Year 1918.

## On Matters relating to Diseases Dangerous to Public Health.

1869. The Prevention of Disease.
1870. Trichina Disease in Massachusetts.
Charbon in Massachusetts.
The Cause of Typhoid Fever.
1871. Vegetable Parasites and the Diseases caused by their Growth upon Man.
Smallpox in Massachusetts.
1872. Infant Mortality.
Analysis of Correspondence and Some of the Causes or Antecedents of Consumption.
1873. Cerebro-spinal Meningitis in Massachusetts in 1873.
1875. Report of an Outbreak of Intestinal Disorder attributable to the Contamination of Drinking Water by Means of Impure Ice.
Report on Registration of Prevalent Diseases.
1876. Registration of Deaths and Diseases.
1877. Scarlet Fever.
1879. Disinfection (Circular).
Trichinæ in Relation to the Public Health.
1880. Intermittent Fever in Massachusetts.
1882. Leprosy in its Relation to Public Health.
1883. Trichinosis.
1884. Epidemic Cholera.
Disinfection and Disinfectants.
1885. Malaria in Eastern Massachusetts.
1886. An Inquiry into the Transmission of Infectious Diseases through the Medium of Rags.
1888. Trichinæ in Swine.
1889. Intermittent Fever in Massachusetts.
The Influenza Epidemic of 1889 to 1890.
1891. A Geographical Distribution of Diseases in Massachusetts.
1892. Reports upon Epidemics of Typhoid Fever in Massachusetts in 1892.
1893. Isolation Hospitals for Infectious Diseases.
1894. Report upon Experiments and the Effect of Feeding upon Trichinosis in Hogs.

Report upon an Epidemic of Typhoid Fever in Marlborough apparently due to the Effect of Skimmed Milk.

**1896.** A Comparative Study of the Toxine Production of Diphtheria Bacilli.

**1907.** The Occurrence of Infantile Paralysis in Massachusetts.

**1908.** The Growth of Typhoid Bacteria in Milk.

Experimental Researches in Tuberculosis with Special Reference to Etiology and Pathology and Immunity.

On the Prevention of the Spread of Tuberculosis.

Milk as a Carrier of Infection.

The Occurrence of Infantile Paralysis in Massachusetts.

**1909.** Infant Mortality and its Intimate Relation to the Milk Supply.

The House Fly as an Agent in the Dissemination of Infectious Diseases.

Ophthalmia Neonatorum: Preventive Treatment.

What is Diseased Meat and what is its Relation to Meat Inspection?

Animal Diseases transmissible to Man.

Origin and Prevalence of Typhoid Fever in Boston in 1909.

The Occurrence of Infantile Paralysis in Massachusetts.

**1910.** Chemical Disinfection.

Insects as Carriers of Disease.

Antityphoid Inoculation.

The Occurrence of Infantile Paralysis in Massachusetts.

**1911.** Progress in preventing the Spread of Tuberculosis.

Eighteen Cases of Tuberculosis among Children employed in Textile Factories.

Prevalence of Tuberculosis among Children employed in Factories in Berkshire County.

An Investigation as to the Occurrence in Massachusetts of Paralysis in the Lower Animals and Fowls.

The Control of Typhoid Fever.

The Occurrence of Infantile Paralysis in Massachusetts.

**1912.** Report upon the Work of the State Board of Health relative to the Control of Infectious Disease.

The Occurrence of Infantile Paralysis in Massachusetts, 1907–12.

Some Experimental Observations upon Monkeys concerning the Transmission of Poliomyelitis through the Agency of Stomoxys Calcitrans.

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The Control of Ophthalmia Neonatorum in Massachusetts.

A Study of the Hygienic Condition of the Air in Textile Mills with Reference to the Influence of Artificial Humidification.

**1913.** Further Experiments in Poliomyelitis.

Experiments to determine if Paralyzed Domestic Animals and those associated with Cases in Infantile Paralysis may transmit this Disease.
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**1916.** Human Anthrax.
**1917.** Tuberculosis Subsidy Report.

### ON MATTERS RELATING TO FOODSTUFFS AND THEIR ADULTERATIONS, DRUGS AND POISONS.

**1869.** Report on the Sale of Poisons.
**1870.** Correspondence concerning the Effects of Intoxicating Drinks.
Use of Milk from Cows affected with "Foot and Mouth Disease."
**1871.** Analysis of Correspondence concerning the Use and Abuse of Intoxicating Drinks.
On the Evil Effects of the Use of Arsenic in Certain Green Colors.
The Adulterations and Impurities of Food.
The Use and Abuse of Opium.
**1872.** Additional Analysis of Evidence concerning Intoxicating Liquors. Beer Shops and Prohibitory Laws.
The Character of Substances used for Flavoring Articles for Food and Drink.
The Food of the People of Massachusetts.
The Adulteration of Milk.
The Adulterations and Impurities of Food.
**1874.** Our Meat Supply and Public Health.
**1879.** The Adulterations of Some Staple Groceries.
**1882.** The Adulteration of Food.
**1883.** Arsenic as a Domestic Poison.
**1887.** Report upon Oleomargarine, its Manufacture and Sale, its Healthfulness as an Article of Food.
**1888.** Report on the Sale and Use of Opium in Massachusetts.
**1891.** Report upon Arsenic in Wall Paper and Fabrics.
**1907.** Report upon the Chemical Examination of Drawn and Undrawn Poultry kept in Cold Storage.
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**1909.** A Study of Some of the Spore-bearing Anaerobic Bacteria in Market Milk.

### ON OCCUPATIONAL HYGIENE.

**1870.** Health of Minors employed in Factories.
**1871.** The Effects on Health of the Use of Sewing Machines moved by Foot Power.
**1885.** Cases of Lead Poisoning.
**1906.** Sanitary Condition of Factories, Workshops and Other Establishments.

**1908.** Health of Minors in Factories in Relation to Industry.
Hygiene of Cigar Factories.
Sanitation of Clothing Factories.
Occupational Diseases.
**1910.** Lead Poisoning.
Factory Inspection and Public Health.
**1911.** The Sanitary Conditions of Tenement-house Workrooms in Suffolk County and their Important Relations to Public Health.
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Sanitary Conditions in Foundaries in Massachusetts.
Sanitation in Laundries in Massachusetts.
**1912.** Hygiene of the Boot and Shoe Industry in Massachusetts.

### On Matters relating to Health of Cities and Towns.

**1870.** Analysis of the Mortality of the City of Boston in 1870.
**1873.** The Work of Local Boards of Health.
**1875.** The Health of Boston in 1875.
The Health of Lowell in 1875.
**1876.** The Sanitary Condition of Lynn.
**1877.** The Sanitary Condition of Cambridge.
**1883.** The Sanitary Condition of Somerville.
**1884.** The Sanitary Relations of Taunton.
**1907.** On Infantile Mortality of Boston during the Period of June 1 to Nov. 30, 1907.

### On Hygiene of Schoolhouses and Children.

**1870.** The Ventilation of Schoolhouses.
**1873.** School Hygiene.
**1876.** The Growth of Children.
**1877.** Sanitation of Public Schools in Massachusetts.
**1878.** The Growth of Children: a Supplementary Paper with Suggestions in Regard to Methods of Research.
**1879.** Care of Young Children. (Circular.)
**1880.** Schoolhouses and Sanitation.
**1884.** The Sanitary Conditions of School Buildings in Massachusetts.
**1887.** The Heating and Ventilating of Schoolhouses by Jacketed Stoves.
**1890.** The Growth of Children studied by Galton's Method of Percentile Grades.

### On Matters relating to Slaughtering, etc.

**1869.** Report on Slaughtering for the Boston Market.
**1871.** Slaughtering, Bone-boiling and Fat-melting.
**1874.** The Transportation of Live Stock.
The Brighton Abattoir, etc.

## MISCELLANEOUS.

**1870.** Homes for the Poor, Convalescent Homes, the Sewage Question.
Air and its Impurities.
**1871.** Proper Provisions for the Insane.
**1873.** Preventive Medicine and the Physician of the Future.
The Health of the Farmers of Massachusetts.
Hospitals.
Political Economy of Health.
**1874.** Inebriate Asylums or Hospitals.
The Value of Health to the State.
The Composition of the Air of the Ground Atmosphere.
The Ventilation of Railroad Cars.
Cremation and Burial: an Examination of their Relative Advantages.
A Report on the Sanitary Condition of the State Prison at Charlestown.
**1876.** Diseases of the Mind.
**1877.** Cottage Hospitals.
Dangers from Color Blindness.
**1878.** Coal Gas from Heating Apparatus.
Common Defects in House Drains.
A Contribution to the Study of Ventilation.
**1882.** Our Eyes and our Industries.
**1884.** The Relation of Illuminating Gas to Public Health.
A Study of the Relative Poisonous Effects of Coal and Water Gas.
**1888.** The Number and Distribution of Micro-organisms in the Air of the Boston City Hospital.
**1889.** The Physique of Women in Massachusetts.
**1895.** Report upon the Production and Use of Antitoxin.
**1905.** Description of the New Antitoxin and Vaccine Laboratory with a Ten Years' Retrospect of the Production and Distribution of Diphtheria Antitoxin.
**1906.** A Comparison of Methods for the Determination of the Alkalinity of Ash.